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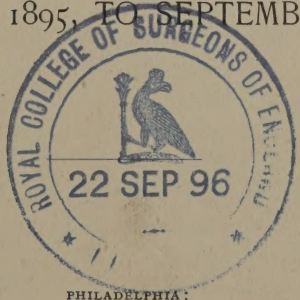

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CONTRIBUTORS TO VOLUME VIII.

Allyn, Herman B., M.D., Philadelphia, Pa.
Ashmead, Albert S., M.D., New York, N. Y.
Baer, B. F., M.D., Philadelphia, Pa.
Baldy, J. M., M.D., Philadelphia, Pa.
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ROYAL COLLEGE OF SURGEONS OF ENGLAND
24 MAY 95

A CASE OF SECONDARY CARCINOMA OF THE BONES; MULTIPLE FRACTURES; ASSOCIATED DUODENAL ULCER; POLYURIA.[1]

By John H. Musser, M.D.,

Assistant Professor of Clinical Medicine, University of Pennsylvania; President of the Pathological Society of Philadelphia.

A. B. C., male, aged 34 years; civil engineer; born in Maryland, of gouty parents.

There was no specific history and no hereditary specific taint. The habits of the patient had always been good; he was a hard, energetic worker, exposed, as division engineer on the railroad, to all kinds of weather; sometimes working twelve and eighteen hours in twenty-four, frequently with clothing wet all the time, and often without food.

The patient was generally in good health, with the exception of dyspepsia. The dyspepsia was of the acid variety, on account of which he took enormous doses of bicarbonate of soda. He carried the drug in his pocket and literally took handfuls at a time for relief.

Four years ago he began to suffer from what was alleged to be rheumatism. A short time previous to this he had two of the right upper molars extracted, and from their site a hard mass developed. Later, nodes developed in different parts of the body, under the periosteum.

He visited Carlsbad in 1889, and was told he had periosteal rheumatism. He removed to Philadelphia in the fall of 1889; he was treated for rheumatism and put on a very low diet.

I saw the patient January 7, 1890. He was extremely anemic, and there was some emaciation and great prostration. The red

[1] Read before the College of Physicians of Philadelphia, June 5, 1895.

blood-corpuscles numbered 2,500,000. He suffered extremely from acid and flatulent dyspepsia ; the bowels were regular. He had grave polyuria. There was a loud systolic murmur at the aortic orifice, transmitted into the vessels of the neck. There was extreme pulsation of the aorta at the root of the neck and in the abdomen. The pulse was frequent, quick, and bounding. Lungs normal ; liver normal in size ; no cerebral or spinal symptoms.

The node in the right upper jaw resembled an epulis. It had not recently increased in size and caused him no inconvenience. It was as large, in circumference, as a quarter of a dollar, half an inch thick, hard, and very red in appearance. It would swell irregularly and bleed very much, after which it would be reduced. Sometimes the bleeding occurred on slight provocations, strong sucking action of the mouth causing it.

The following is the order of development of the nodes :

(1) On right upper maxilla (in the mouth).
(2) On the head of the right tibia.
(3) On metacarpal bone of right hand.
(4) On right ulna, at its upper portion.
(5) On right femur, at its middle portion.
(6) On left tibia.
(7) On the sixth rib, right side.

The nodes on the extremities were occasionally the seat of considerable pain and tenderness, and, according to the report of the patient, varied in size from time to time.

The anemia improved, as shown by various blood countings which have been mislaid. Polyuria continued.

February 17. Urine, 3520 cubic centimetres ; specific gravity, 1007 ; urea, 41, or 14.432 grammes, per day ; phosphates, .07, or 2.464 grammes, per day ; uric acid, albumin and sugar none ; reaction acid.

The strength improved somewhat, and early in the summer he went to Atlantic City. The patient had been bed-fast all winter, however, and during this time, and while at Atlantic City, experienced several fractures.

The patient was again seen by me at his home in Philadelphia, September 19, 1890. His polyuria had improved somewhat. Thirst, however, was still extreme. The cardiac dulness was much increased ; apex in fifth interspace ; mitral murmur marked ; increased dulness in the course of the aorta. Liver dulness was increased upward one inch. There was epigastric pain and tenderness, apparently not increased by food, but paroxysmal.

Analysis of urine of September 23, 1890. Amount six pints ;

slightly acid; straw color; specific gravity, 1005; no albumin or sugar; pus in very slight quantity; phosphates in very great abundance.

The volume of urine passed each day, from February to October, 1890, was constantly above the normal. The lowest quantity noted was on September 25, the amount being two quarts and four ounces. Generally, it was between four and five quarts, occasionally, however, rising to six, and even seven quarts in twenty-four hours.

On the 25th, the patient had a profuse hemorrhage from the stomach; the blood was bright in color, not mixed with food, and the gastric hemorrhage was followed, in four hours, by a large discharge of black blood from the bowels. Another hemorrhage occurred on the succeeding day, causing the intense anemia and profound exhaustion that his condition would predispose to. Red blood-corpuscles reduced 900,000. The usual symptoms of anemia developed; fever and delirium were particularly noticed. October 3, another hemorrhage took place, followed by death in six hours.

The last two hemorrhages above noted were predicted by the patient on account of his sensations. He experienced a sensation of trickling of blood, a little to the right of the median line in the epigastrium. This continued about an hour, attended by increasing weight and fulness in the left upper quadrant and followed by the hematemesis.

After the first hemorrhages there was edema of the face and extremities, and a hypodermic injection was followed by local tenderness and a subcutaneous hemorrhage about the point of puncture. During this time, without an anodyne, the patient suffered much from local pain.

Autopsy.—Permission was given to examine the stomach alone, and remove a portion of the mass from the clavicle.

The stomach was dilated; it contained blood. The duodenum was the seat of an ulcer one-half millimetre in diameter with hard, rounded edges, and which had perforated the walls. Adhesions surrounded the ulcer and the floor was made up of pancreatic structure. The hemorrhage was from a branch of the pancreatic artery, which could be seen in the ulcer.

The portion from the clavicle was examined by Professor Allen J. Smith, now of Galveston, Texas. He reported that the structure was that of a carcinoma, the primary source of which was found in the epithelial structures about the teeth. In the accompanying note the structure is described by Professor Smith.

Examined fresh teased portion from rib in a solution of sulphide of sodium of a specific gravity, 1026, with a bit of methyl blue added fix the cells. I find among the cells the accompanying forms. I believe all those marked *a* to be epithelial,

and the condition hence cancer. The others appear, to me, to be embryonal blood-corpuscles; *b* being probably a nucleated white cell, and *c* nucleated red corpuscle, the nucleus gradually fading out as indicated by letters (c, c, etc.). I have attempted to keep the relative sizes, from Zeiss D. D. oc. 4. In the case of the clavicle there are undoubted evidences of cancer, of a flat-celled type, and the tumor showing in it is made up largely of such cells. (Letters refer to a pencil sketch sent with the report, but which could not be reproduced here.)

There are several features of interest in this case. And first of all, the associated pathological conditions, *multiple carcinoma of the bones, duodenal ulcer, and polyuria.* The association of the former is purely accidental, no doubt, and without significance; the latter may have been dependent upon either one or the other of the former conditions.

(*a*) I cannot in an extended research find any mention of the association of polyuria with carcinoma of the special variety we have to deal with. Naturally we were led to believe a secondary growth must be present in the pancreas or in the region of the fourth ventricle of the brain. In both of these situations, the growth has given rise to diabetes insipidus. The symptoms do not allow one to think a cerebral growth was present, and the post mortem failed to reveal the presence of a growth in the pancreas. Gregoire, in his paper on "L'Urine dans le Cancer,"[1] does not refer to polyuria in cancer.

In all probability, the excessive discharge occurred because of the tissue at fault rather than because of the lesion.

Since the case has been under observation, I have studied many cases of rachitis, in which an excessive flow of urine was observed. One infant was almost continuously urinating and the soaked diapers yielded a fluid, the specific gravity of which ranged, at different times, from 1000½ to 1003.

(*b*) *The Duodenal Ulcer.*—This was not suspected during life, as there were no symptoms pointing to its presence. Dyspepsia plagued the poor fellow many years, and the acidity from which he suffered was spoken of in the notes. He never suffered gastric pain until nine days before death. The ulcer was an old one, and, undoubtedly, without the usual symptoms until the last ten days of illness.

The excessive acidity alone might have been taken as indicative of an ulcer, either gastric or duodenal. It was not practicable to employ the usual tests of the gastric contents.

When discovered at the autopsy, it was thought there was carcinoma about the edge of the ulcer, but further investigation failed to disclose its presence.

(*c*) I have asked Dr. Wharton, who attended to the surgical requirements of the case, to describe the various complications.

[1] F. 1248. 1883-84, No. 15.

Notes of Dr. Wharton.—"I saw Mr. —— in March, 1890, and found him suffering from a fracture of the left femur in its middle third. The patient stated that the bone gave way while sitting in a chair, and the fracture was the result, as he thought, of a sudden spasm of the muscles of the thigh. I found, upon questioning him, that, a few months before, he had suffered from a fracture of the right clavicle, which had resulted from a sudden turning in bed. On examination I found a large mass of elastic callus about the seat of fracture in the clavicle, the union being firm enough to allow of free use of the arm of the injured side.

The fracture of the femur was treated by median extension, and lateral support was given by bran-bags and splints, and, by the end of four weeks, union had so far taken place that the limb could be lifted in the dressing without causing any displacement of the fragments, and without causing him any pain.

At this time, while moving himself in bed to change his position, the right femur suddenly gave way in its middle third at a point corresponding with the thickening of the bone previously mentioned. This fracture was treated as the previous fracture of the femur, and, after a few weeks, seemed to have made some progress towards union. The patient, a short time after the fracture of the right femur, one evening, while raising his body by means of his arms, suddenly felt his right arm give way, and, on examining him a few hours afterwards, I found an oblique fracture of the right humerus, about its middle third. This was treated upon an internal angular splint, with external splint of binders' board, and in several weeks there was some union at the seat of fracture.

The patient was at this time sent out of the city for the summer, and I saw him once during his absence from the city, and examination showed that there was some improvement in the condition of all the fractures.

Upon the return of the patient to the city, in September, I examined him and found that the fracture of the humerus was quite firm, although the union was not bony, but was of sufficient firmness to permit him to use the arm moderately; the fractures of the femur were not so firmly united, and that of the left femur showed a large amount of swelling in the region of the fracture, and there was more motion in the seat of the fractures of the femur than at the time of my previous visit.

Upon post-mortem examination the fracture of the clavicle, on section, showed that there was no true bony union, and that the fragments were surrounded and held together by a mass of fibrous and spongy tissue; a like condition existed at the seat of the fractures of the humerus and at both fractures of the femur.

All the bones were in a softened condition and could be readily cut with a knife or scissors.

The case proved to be one of secondary cancer of the bones, and the softening and fragility of the bones were very marked, as evidenced by the ease with which the bones fractured upon slight provocation.

As regards the prospect of firm union of fractures in cases of this nature, my experience has been that there is no true bony union, and that the union which does occur is simply that which results from the development of a new growth at the seat of fracture. I have had under my care, within a few years, two other cases of secondary cancer of the bones, in both of which the disease resulted from cancer of the breast. In one of these, the clavicle was fractured in turning in bed, and in the other case, the femur was broken in the middle of its shaft by a similar movement, and in neither case was there any union at the seat of fracture up to the time of the death of the patients."

Remarks.—It is well known that carcinoma of the bones is rare, as compared with sarcoma. Markoe[1] treats the subject most extensively. Geissler's[2] paper is most interesting, and is based on the modern views of carcinoma. It is not well to go back into the literature of the disease. Isolated cases are reported as carcinoma, when, on the face of them, they are undoubtedly sarcoma.

The disease is always secondary. The primary growth appears to be most frequently in the breast. All authorities point to the necessity of exercising great care in finding the primary growth. The prostate, the testicles, the thyroid, the esophagus, the pharynx, and the penis may be the seat of small growths. Billroth disclaims the reported cases that appeared to originate in the lower jaw, the anterior surfaces of the tibia, or the lymphatic glands of the neck, for the close proximity of skin or mucous membranes would invite invasion from either of these primarily affected structures. In one of Bryant's cases, a scar in the heel became carcinomatous, and from thence extended to the os calcis.

The primary growth may be present without symptoms. Frequently the primary growth atrophies. There is almost always a curious disproportion between the primary seat and the metastasis. The former is small, the latter very extended. Thus, in one of the cases under Delafield's care (quoted by Markoe) the primary scirrhus of the breast was very small, very hard and fibrous, while nearly all the bones were affected. In Perl's case of cancer of the vertebra, the primary growth was found to be in the anterior surface of the stomach, —a hard, cicatricial cancer.

[1] Diseases of Bone, 1872.

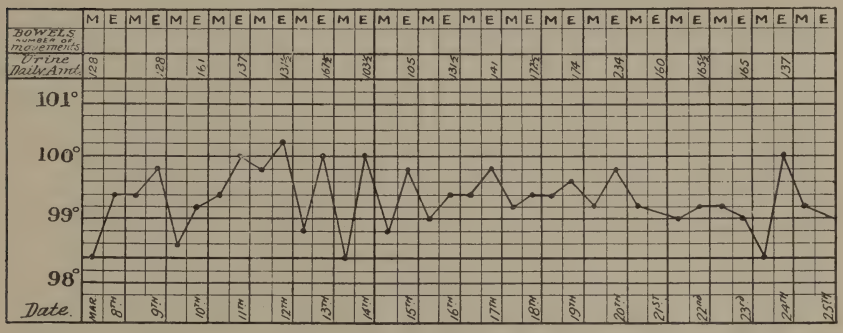
[2] Archiv für klinische Chirurgie, Vol. XLV, 1893, p. 704.

Von Recklinghausen (1891) points out that the prostate may be the unsuspected primary seat in many cases. The naked-eye appearances of this gland, when removed, often fail to disclose its character.

Von Bergmann insists on extending the search. One of his cases was remarkable. The case was of thirty years' standing. A tumor of the liver was presented. It was thought to be an echinococcus, and was to be operated on. On examinations of the testicles, two small, adherent, knotty swellings were found, which, the patient said, had been there a long time. The post mortem later verified the diagnosis.

Geissler, to whose article I am indebted for much of the above, reports a case from the Berlin Clinic which originated in the bladder. The scapula became involved secondarily, three months after bladder symptoms arose. The nature of the lesion in the bladder was very

CHART 1.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obscure, and not until operative measures were resorted to, did they discover the character of the lesion.

The temperature during the course of the disease was slightly above normal, varying from 99° to 100° F. Thus, in March, from the 9th to the 28th, the range was, as the accompanying chart indicates, not materially different from other periods. The chart also indicates the amount of urine passed in twenty-four hours. After the hemorrhage from the stomach, the temperature rose; it was, no doubt, due to the anemia. The second chart of anemic fever is of interest, and is therefore appended.

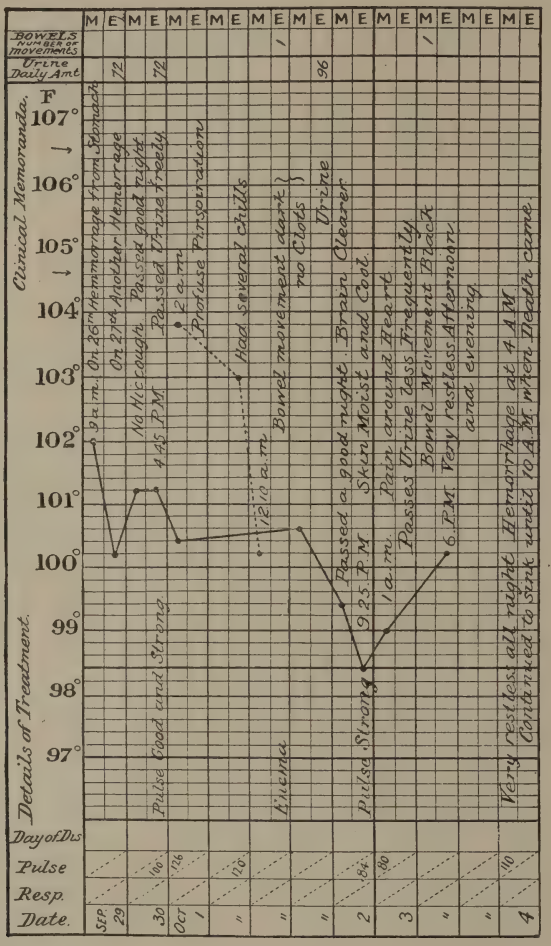
Diagnosis.—It can readily be seen that, in certain diseases, as cancer of the vertebra, the diagnosis of which is often difficult, the detection of the primary growth is of pronounced aid in the recognition of the disease in question.

It can also be seen that, conversely, if carcinoma is found in a

portion of an excised tumor, connected with bone and removed for diagnosis, obscure symptoms connected with internal organs may be explained.

In the case we have under discussion, had a portion of the primary growth been removed for examination, the diagnosis of syphilis

CHART 2.



or rheumatism would not have been made, and the man spared the expense and fatigue of foreign travel. There was no ground upon which such diagnosis could have been built.

In a review of the cases of carcinoma *versus* sarcoma of the bones, we find that the latter usually occur earlier in life, although

the former may be seen as early, in rare cases. The duration of carcinoma is greater than that of sarcoma. The metastatic growths are more abundant in the former than in the latter.

Summary.—Male, aged 34 years. Primary *carcinoma* upon superior maxilla; secondary carcinoma of bones; multiple fractures; diagnosis during life, syphilis and rheumatism; exact diagnosis of carcinoma could have been made from section removed during life. Duration four years.

Death from *hemorrhage* due to *duodenal ulcer.* Ulcer not suspected during life until the occurrence of hemorrhage. *Diabetes insipidus.*

1927 Chestnut Street.

IS SUFFICIENT IMPORTANCE GIVEN TO THE RECOGNITION OF POSITION IN LABOR?[1]

By George M. Boyd, M.D.,

Philadelphia.

The study of the mechanism of labor has interested me to such a degree within the past five years, in my work at the Philadelphia Lying-in Charity, where I have had rather unusual opportunities, that, upon seeing your notice of the obstetrical query that heads this article, I decided to give you the conclusions to which my experience has led me.

The obstetric art has advanced so rapidly within the past decade, owing to our better appreciation of surgical cleanliness, that to-day we have resurrected operations which a few years ago were mentioned only in condemnation.

These operations for the most part are performed to save the life of the child. The Cesarean operation, which was at one time looked upon as the greatest of surgical procedures, was seldom done because of the high mortality. Now it is in the mind of every careful operator dealing with deformed pelves. The operation he premeditates, and, if necessary, it is done with surgical cleanliness. Not as a *dernier ressort* after one, two, or three physicians in turn have attempted to drag a fetal head through a conjugate of six or seven centimetres.

Until recently has symphyseotomy proved to all its field of usefulness, making it possible for us by an operation of not great magnitude to separate the pubic symphysis five or seven centimetres, and

[1] Read before the Delaware State Medical Society, Wilmington, June 12, 1895.

thereby increasing the true conjugate more than one centimetre. We have appreciated also with what ease by manual dilatation of the cervix we can bring on labor, and how rapidly we can terminate the delivery when it is essential. And so on could I mention the list of operations now to a certain extent robbed of their great danger. But, most of all, has the obstetrics of to-day made us more mindful of the fact that we have two lives at stake, and that while the life of the mother is paramount we must remember that we have no right to sacrifice that of her child.

The importance of recognizing the position the presenting part bears to the cardinal points of the superior strait is only apparent when we appreciate the fact that in the mechanism of labor there are two great factors,—a birth-canal and a passenger or fetal ovoid.

First, then, we must study the fetal ovoid, its size, shape, presentation, and position.

Second, we must study the birth-canal, its shape, and capacity.

Let us see how much knowledge of our case can be gained by the study of the size, shape, and position of the fetal ovoid, and here I would like to call your attention to the importance of practising abdominal palpation, studied so carefully by the German and French accoucheurs, and I am afraid not enough appreciated by us Americans. Indeed, so skilled have some become in palpating the abdomen as to diagnose, *first*, whether our patient is pregnant or not, *second*, the size of the fetus and its position, that Professor Leopold has suggested that we do away with the usual method of internal examination, thereby avoiding in some cases infection produced by the hand supposed to be clean, but very far from sterile.

Does the physican give sufficient importance to the recognition of position in labor? I am afraid I must answer this question in the negative.

The reason that obstetrics is disliked by some is not because of the irregularity of the work (depriving one of sleep and interfering with one's office hours), but because of the fact that each case is a mysterious uncertainty if not very carefully studied.

Abdominal palpation should be practised during the last months of gestation or early in labor by every one who assumes the responsibility of an obstetrical case.

This examination is best made with the patient on an examination-table or a bed upon a hard mattress. The decubitus should be as horizontal as possible. It is not necessary to expose the abdomen, but the skin should be covered with only one thickness of newly-laundered linen.

The examiner should stand to the left or right side of patient (I prefer the left), but it is necessary that he should stand at about the height of the umbilicus. He should then examine the thickness of the abdominal wall. The ease with which palpation is performed depends upon the small amount of adipose tissue and whether the patient is multiparous or not. An inspector of the abdomen calls his attention to its size, the shape of uterus, and whether or not some tumor is complicating the case.

Knowing that the cephalic extremity of the ovoid is usually found in the pelvic excavation, he first makes this examination.

The hands placed five or six cubic centimetres to the right and left of median line and just above the horizontal rama of the pubes, the fingers are then made to dip into the false pelvis. The fetal head is recognized as a mass, round, resisting, which fills either entirely or partially the pelvic excavation.

The cephalic extremity of the ovoid located, we next attempt to ascertain whether the occiput is anterior or posterior. This can be usually made by locating the back of fetus to the right or left side.

If the breech presents, the signs just mentioned are absent, the excavation is empty, the uterus possesses its usual pyriform shape, and at the fundus the head can be felt and external ballottement practised. By abdominal palpation we can also appreciate the size and shape of the fetal ovoid,—is it a large or small infant? have we a multiple pregnancy or a deformity due to disease of intra-uterine life?

Some years ago I saw a case in consultation which impressed upon me the importance of studying our pregnant patient before labor, and not taking it for granted that, because the former labors had been normal, the present is also.

Her physician had delivered her three times without difficulty; the fourth labor, I believe, which was expected to be as easy as the others, was complicated with a disease of intra-uterine life, hydrocephalus. Another case of interest was a patient, a negress, who presented herself at the clinic of the Philadelphia Lying-in Charity.

Upon examination it was found that she was pregnant for the third time, and that we were dealing with a cross birth,—the head in one iliac fossa, the breech in the other. Interference being necessary she was sent to the ward, put to bed, and immediately attempts were made to turn the ovoid by external manipulation. The abdominal wall was thin so that cephalic version was soon performed. Lateral support was made with compresses to hold the head at the pelvic brim until labor began, which fortunately came on very soon.

The height of obstetric art is, in not only the diagnosis of pre-

sentation and position, but after recognizing a malposition, to correct the trouble before labor, if possible.

The Birth-Cause.—The study of the pelvis gives us more accurate knowledge than the study of the passenger or ovoid. It is my custom in all cases, whether hospital or private, to make careful measurements of the pelvis. I tell my patient that I will call on her between the seventh and eighth month of gestation, and I have never met with any objection on the part of patients to the examination. An ordinary tape with the metric scale, and a pelvimeter, after the Martin or Harris pattern, are the only instruments needed.

The measurements we make at the Charity are as follows:

Girth of Abdomen at Umbilicus.—This measurement varies with the advance of gestation, but it is of interest at times in confirming the onset of gestation. It also aids us in recognizing the existence of twin pregnancy, hydrometras, and the additional distention of abdomen caused by ascited fluid.

Distance of Fundus Uteri above Symphysis.—This measurement is useful in drawing our attention to the shape of the uterus.

Girth of Pelvis.—We make this measurement in a line passing through the upper border of the symphysis pubis and the spinus process of the last lumbar vertebra; each half is measured, and the two added. The average circumference of the pelvis is ninety centimetres, or thirty-six inches. This measurement is subject to very great variation, but if it is as low as seventy-five centimetres—or sixty-five centimetres, as it may be sometimes—the pelvis is certainly much contracted.

The Distances of the Iliac Spines.—This measurement is made by adjusting the points of the pelvimeter at the antero-superior spinous processes of each side just outside of the tendon sartorius. Litzman, from 200 normal pelves measured during life, found the average spine measurement to be 27.2 centimetres. About one-half the spine measurements given are the transverse brim measurement.

The Distance of the Crests of Ilii.—This is obtained by applying the instrument to the two opposite points that are most widely separated, or, in case the crests approach each other as they recede towards the spine, about *two* inches back of the most widely separated points should be taken. A small difference in the spinal and crest measurements, or a reverse difference (the crests measuring less than the spines), is a strong indication of flattening. Parvin makes the average measurements: Spines, twenty-five centimetres; crests, twenty-eight centimetres.

Speigelberg formulates with great definiteness the use that may be made of these two diameters is ascertaining the type of any pelvis

under examination. (The distances are of average length, and their relation to each other the usual one.) The measurement between the crests of ilii exceeds the spine ilii measurement by from two and a half to three centimetres.

The Conjugata Externa.—The external conjugate, or Baudelocque's, measurement is taken from the depression just below the spinous process of the last vertebra and the upper border of the symphysis pubis,—at a point which gives the greatest distance. This measurement averages twenty and a half centimetres. According to Litzman, the average excess of external conjugate over the true conjugate is nine and a half centimetres (three and three-quarters inches). In the dried pelvis the excess of external over the true is 7.8 centimetres. Hence in a typical normal pelvis having a true conjugate of eleven centimetres the external conjugate averages twenty and a half centimetres if taken during life, or 18.8 centimetres if taken in the dried state. This makes the average thickness of the soft parts included, during life 1.7 centimetres. In seventy-two dried pelves examined by Pershing, including a great variety of pelvic deformity, the external conjugate bore the following relation to the true conjugate:

External Conjugate Measurement.	No. of Cases.	No. in which True Conjugate was 10 Centimetres or Less.
22 centimetres	5	0
21 to 21.9 centimetres	5	1
20 to 20.9 "	12	1
19 to 19.9 "	13	7
18 to 18.9 "	12	6
Less than 18 centimetres	25	25

The conclusions of Litzman are: The external conjugate measuring sixteen centimetres, the pelvis is always narrowed in the same direction. When less than nineteen centimetres, narrowing occurs in more than one-half the cases. From nineteen to twenty-one and a half centimetres, narrowing occurs in 10 per cent. of the cases. More than twenty-one centimetres, narrowing is not to be expected.

The conclusions of Pershing are: If the external conjugate measures less than sixteen centimetres (six and a half inches), shortening of the true conjugate is certain and is likely to be considerable. From sixteen to eighteen centimetres, shortening is extremely probable. From eighteen to twenty centimetres, chances even. From twenty to twenty-one and a half centimetres, shortening improbable. Above twenty-one centimetres, contraction in this direction may be safely excluded.

The External Oblique.—From the antero-superior spinous process of ilium of one side to the tuberosity of ischium of the opposite side.

By this measurement it is possible to recognize the deformed, rachitic, or osteomalacic pelvis.

The Conjugata Diagonalis, or Diagonal Conjugate.—This is the oldest and most valuable of all pelvic measurements, covering the distance from the lower margin of the pubic joint to the promontory of the sacrum. It is found usually by means of one or two fingers. The point of the left index or middle finger being directed towards the promontory of the sacrum, the hand is brought upward till the promontory is reached. While the left hand is in this position, its lateral margin just below the index-finger being in contact with the subpubic ligament, the point of contact is marked by the nail of the index-finger of the right hand. The hand is withdrawn, and the measurement made from this mark to the tip of the finger.

In 661 cases in which Litzman attempted to determine the diagonal conjugate, he succeeded in 301 and failed in 310. In sixty-one cases the promontory could not be reached. The promontory was reached with difficulty, but its distance from the subpubic ligament not accurately measured, in fifteen cases. The measurement was hindered by resistance of external genitals, rigid perineum, edema of vulva, in seventeen cases. It was hindered by low position of uterus, head, or bag of waters, in 175 cases. In forty-two cases cause of failure not given.

The diagonal conjugate less half-inch (1.27 centimetres) equals the true conjugate, according to Playfair and Baudelocque. Lusk subtracts from two-thirds to three-fourths inch, according to the height of symphysis. Speigelberg and Carl Braun mention 1.8 centimetres as the general average to be deducted. The true conjugate then averages eleven centimetres.

Diameter of the Outlet.—The distance from the subpubic ligament to the sacro-coccygeal junction may be measured directly in the same manner as the diagonal conjugate, or it may be taken externally with the pelvimeter and subtracting one centimetre or one and a half centimetres.

Many of our long labors and instrumentation cases are caused by a contraction ante-posteriorly of this too often neglected measurement.

The usual pelvic deformities met with in my hospital work are: The equally contracted pelvis; the flat pelvis; the infantile pelvis; the male or funnel-shaped pelvis, or, as it is sometimes called, the Irish pelvis.

So nearly is the physiology of parturition a mathematical problem that it is not a little surprising that physicians assuming the charge of obstetrical cases will often allow the gravid patient to go to the end

of gestation without diagnosing the presentation or ascertaining whether the pelvis is over-size or contracted.

It may be asked, Is it necessary in all cases to make careful pelvic measurement, as nature usually adapts the child to the canal through which it must pass? This is so; but is it right that we should allow our patient, with possibly a rachitic or osteomalacic pelvis, to actually fall in labor before instituting the proper means for her delivery? With a knowledge of the deformity existing, either the Cesarean operation of to-day or the induction of premature labor will give us a *nil* mortality, while the selection of craniotomy of the living child must mean death to the infant, the physician with two lives placed under his charge causing the loss of the one in order to save the other.

In conclusion, I will state that I believe it is our duty in all primaparous and in many multiparous patients to carefully examine the pelvis by inspection and measurement. We should take the external conjugate, pelvic girth, spines, and crests. Should these not be at fault, they will suffice; but if the pelvis has the appearance of deformity, we should not be satisfied until we appreciate its internal capacity, bearing in mind that the form, size, and height of a patient offer only a slight indication of the condition of the pelvis.

THE TREATMENT OF NON-PREVENTABLE ABORTION.

By Frederic M. Strouse, M.D.,

Philadelphia.

To be assured of perfect results in the treatment of abortion, a point to be recognized is, the necessity of responding to such an emergency *well provided*, so that the accident may be promptly dealt with in any stage of its progress.

When one fails to appreciate the importance of this rule, there is a possibility at least of embarrassment, delay, or an imperfect result.

The following named articles, likely to be of service, are always at hand: a Sims speculum, placental forceps, bullet forceps, uterine dressing forceps, large size blunt curettes, uterine irrigator, scissors, nail-brush, bichloride tablets, creolin, iodoform gauze, antiseptic soap (Johnston's), surgical rubber pad, and a fountain syringe.

The method of procedure is as follows:

In a very careful manner it may be ascertained if the patient is an unmarried woman ; if so, while the miscarriage is usually claimed to be the result of accidental causes, the probability is that the case is a criminal one. In such an instance, powerful emmenagogues may have been taken, instrumentation attempted by the patient, or an operation may have been performed. Owing to the careless manner in which these women are usually handled, in an attempt to destroy the ovum, there is more or less liability to sepsis and an unfavorable termination.

Consultation is requested at once, for self-protection as well as for the interest of the patient.

In this particular the physician, in his relation to the *law department*, is generally understood.

For one who may not be thoroughly posted as to the requirements of the physician practising in Philadelphia, the papers on the subject of Criminal Abortion, read before the County Medical Society by Dr. Parish and several gentlemen of the law, and the discussion, in which the district attorney and coroner participated,[1] are recommended as of value.

The married woman is questioned as follows :

The number of miscarriages ?

What period in the pregnant state have they occurred ?

Date of the last menstruation ?

The history bearing upon the immediate condition.

The required information is obtained, while the discharges are inspected, the hands are being washed, and an attendant is arranging the bedding. It is first determined whether an attempt can be made to preserve the product of conception. With but little dilatation of the cervical canal, a slight discharge, and trivial pains the usual preventive measures are adopted.

Should the pains be severe in the sacral region and the discharge profuse, the case is usually considered beyond the preventive stage.

A digital examination will determine whether the miscarriage is complete or incomplete, the lochia normal or decomposed, and the plan of treatment to be adopted,—that is, a conservative or active plan.

With the miniature labor occurring in a physiological manner, the expectant or conservative plan is practised.

The hair surrounding the vulva is removed with scissors, the external genitaliæ disinfected, and the vagina packed with iodoform gauze (10 per cent.).

[1] Transactions of Philadelphia County Medical Society, 1893.

The packing is accomplished without the aid of a speculum, if possible; guided by two fingers of the left hand the gauze is placed securely against the cervix. When a speculum is required for the purpose of packing, the Sims is preferred to the bivalve instrument. The tampon will control hemorrhage, and with a pad of gauze or bichloride cotton, the dressing is complete.

The packing may remain for twenty-four hours, but is usually removed in about twelve hours, owing to the severe pains of dilatation and impaction of placental tissue within the cervical canal. The instruments having been placed in boiling water and then in a 2-per-cent. creolin solution, the external parts are thoroughly cleansed, the packing removed, and the vagina mopped with strips of gauze.

The cervix is fixed with the bullet forceps and the protruding mass removed.

The finger, the best and safest instrument, is then passed into the uterus, to ascertain whether pieces of placental tissue remain, when the uterine contents are not expelled *en masse*.

When there is not sufficient dilatation to admit the finger, a large-size blunt curette is passed over the entire surface. This is not to be considered a curettement, it is simply for a diagnostic purpose. When small particles of decidua are removed by the aid of the curette, the uterus is flushed by means of the uterine irrigator (Kelly-Hoffman's aseptic instrument) with warm water, previously boiled. Iodoform gauze is loosely packed into the vagina and the external dressing applied.

In twenty-four hours the dressing is removed and examined for particles of decidua; it is the rule to find the gauze perfectly clean; this method of treatment followed by inspection is practised for several days, providing there is no evidence of putrefactive change.

A prompt and uneventful convalescence is the usual result.

The active plan of treatment is demanded when there exists a discharge indicating the retention of decomposing *débris*.

The uterus is then irrigated with a 1-per-cent. creolin solution, and a large-size sharp curette is applied to the entire surface in a thorough manner. The ordinary flushing curette is not a safe instrument for this purpose, its scraping surface is entirely too small. After the curettage and irrigation, the uterine cavity and vaginal canal are filled with iodoform gauze, to be removed in twenty-four hours. If the temperature has been elevated and the pulse accelerated, they will now promptly resume the normal, and the lochia is without odor when the gauze is removed. The vaginal tampon then suffices. The indication for injecting antiseptic solutions into the uterus is when the discharge is purulent and non-toxic solutions

only are employed. There is considerable risk in the employment of powerful solutions where there is an extensive absorbing surface, and the present consensus of opinion is opposed to it.

With insufficient dilatation of the cervical canal for curettement and packing, gradual dilatation with the graduated sounds is preferred to the rapid method with parallel blades; there is danger of tearing the uterine walls when the latter plan is practised.

In the majority of instances anesthesia is unnecessary.

The physician will find it difficult at times to keep a patient in bed more than a very few days, who has convalesced without incident. The evil consequences resulting from indiscretion are impressed upon her mind. The duration of the pregnancy, as well as the rapidity of convalescence, will determine the length of time for absolute rest. The patient is instructed to rest upon the abdomen several times a day, to assist, in a measure, in preventing retrodisplacement of the enlarged womb. The writer has abandoned the practice of ordinary "douches." Regardless of careful instructions, little attention is given to preparing the solutions, to cleaning the vessel for its reception, and also to disinfecting the syringe and its attachments.

If douches are employed, they should be restricted to those cases having the advantages of intelligent nursing.

The only requirements on the part of the attendant are that the external genitals must be washed with a creolin solution and fresh pieces of iodoform gauze applied several times during the twenty-four hours.

The indication for the administration of ergot is in the stage of dilatation, when the tampon fails to control hemorrhage. One ounce of the fluid extract is ordered at once, so there will be no delay, if required.

Dr. Matthew D. Mann[1] reports a number of fatal cases where the heroic plan of treating abortion was practised by physicians of limited experience.

Instances of septic infection and the sequelæ resulting from mismanagement are becoming less frequent day by day, and owing to our increasing knowledge and appreciation of the aseptic and antiseptic technique, they must soon be of rare occurrence.

Concluding Remarks.

For the successful treatment of abortion, it is necessary for the physician to possess all instruments that may be required. They must be of the aseptic design, and their nickel plating perfect.

[1] American Journal of Obstetrics, May, 1895.

The conservative plan of treatment should be practised in normal cases.

The use of the sharp curette limited to cases of septic endometritis.

When antiseptic solutions are injected into the uterine cavity, they must be of such a composition as to cause no anxiety of toxic effects.

"Douching," as commonly practised, is, to say the least, unbeneficial.

Ergot should be used under extraordinary circumstances only.

Stress is laid upon the necessity of compelling the convalescent to remain in bed longer than the usual "few days."

2220 North Broad Street.

CENTRAL SCOTOMA, OCCURRING IN THE TWO EYES SUCCESSIVELY, WITH AN INTERVAL BETWEEN THE ATTACKS.

By William E. Bruner, A.M., M.D.,

Cleveland, Ohio,

Clinical Assistant in Ophthalmology, Dispensary of Western Reserve Medical College, and Assistant in Charge of Eye Clinic, St. Vincent Hospital.

The following case has been of interest to the writer; and, as it is of rather infrequent occurrence, it may be of sufficient interest to others to warrant its publication.

O. W., aged 37 years, consulted me at the request of Dr. C. F. Hoover, March 2, 1895, with the statement that five days previously he had noticed a blur before the right eye. This had come on suddenly, and had not changed in character nor amount from the time of onset until I saw him.

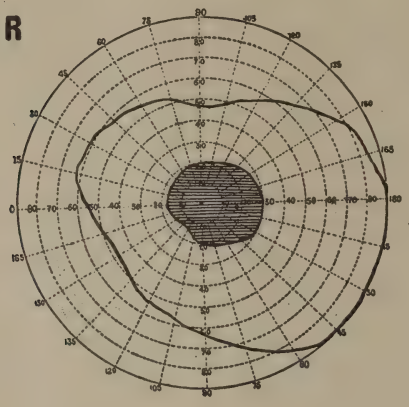
He had always enjoyed good health. The heart, in fact, the whole arterial system, lungs, and kidneys were normal. There was no history of rheumatism in the family, and he himself had never been troubled with it, nor was there any history of exposure to cold. Influenza and malaria were excluded, as was also any specific condition or toxemia, and examination of the nervous system revealed nothing abnormal. He did not use tobacco. For some time, however, he had not been feeling as well as usual, and recently had been troubled with psoriasis. This had almost entirely disappeared under the use of arsenic. A clergyman by profession, he had been working very

hard, sitting up very late at night reading and writing, and a few days previously had remained up all night doing some work which required close use of the eyes.

In external appearances, the eyes showed nothing abnormal. The pupils were equal and responded readily to light, though the reaction was not quite so prompt in the right as in the left eye. No congestion of the eyeball existed, no pain and no tenderness to pressure. Vision with the left eye was normal, while with the right eye, it was limited to seeing fingers in the periphery of the field; when he closed the eye, he would see a luminous spot of considerable size where, at other times, with the eye open, the dense cloud existed.

Ophthalmoscopic examination revealed in O. S. media clear, disk round, with edges distinct, veins slightly full.

FIG. 1.



In O. D. media were clear, disk round, edges decidedly hazy, especially above, below, and in, where they were almost hidden. Retina surrounding the disk was slightly striated, and in the immediate vicinity of the disk presented the appearance of very slight edema. No retinal hemorrhages were present. The veins were very much dilated and slightly tortuous, while the arteries were about normal in size and color.

Measurement of the field upon the perimeter showed a central scotoma, complete for form. (Fig. 1.)

In the periphery of the field of vision, the color sense was good with normal limits. The condition seemed to be a retrobulbar neuritis or an inflammation of the macular bundle of fibres, probably hemorrhagic in character and due possibly to excessive use of the eyes.

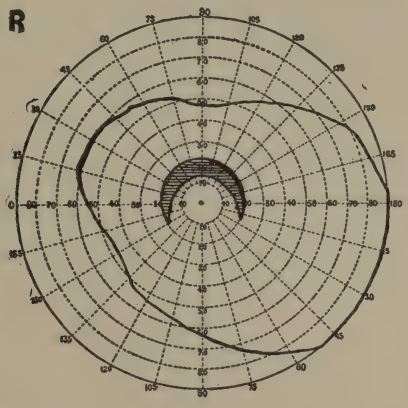
He was sent to St. Vincent Hospital, a blister was applied to the right temple, and he was freely sweated with pilocarpine, administered hypodermically. Chloride of mercury and potassium iodide were given internally and hot packs applied locally. After several days he began to notice some diminution in size of the blind area, and on March 11, perimetric measurement gave the result seen in Fig. 2.

March 15. No scotoma for form now exists, and the colors are recognized in all parts of the field except in the small area, where at the last examination a scotoma for form still existed. This color scotoma gradually decreased in size until finally it entirely disappeared.

March 19. V. in O. D. $\frac{5}{9}$. Complained of microtopsia in O. D.

March 28. V. $\frac{5}{5}$. Ophthalmoscope revealed the edges of disk

FIG. 2.



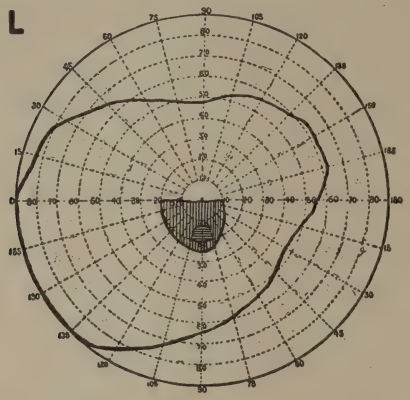
more distinct, though still slightly hazy. Stopped mercury, continued potassium iodide, and began strychnine sulphate.

Almost a month later, April 22, he came to the office with the statement that the right eye was still improving, but that several days before he had noticed a blur before the left eye just below fixation, and that the eye has been red, painful when he moved it, and tender to the slightest pressure. Since he left the hospital he has been feeling in the best of health, better, in fact, than he had felt for a long time, and, of course, he had not been using his eyes for any kind of close work. It seemed impossible at that time to find anything to account for this attack. V. $\frac{5}{5}$ in each eye. The left eye showed considerable pericorneal and bulbar injection. The cornea was perfectly clear, as was also the iris, which responded readily to light. There was very little tenderness to pressure or pain in moving the eye until after I had been examining it for awhile.

The ophthalmoscope revealed the veins very full, edges of the disk, and, in fact, the whole fundus slightly hazy. Fig. 3 shows the field of vision.

The larger area indicates where vision is dulled, but the only absolutely blind portion is a small area between thirteen and twenty

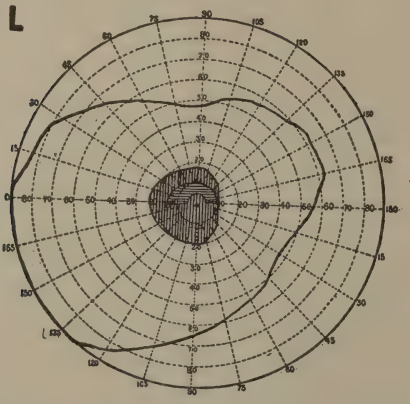
FIG. 3.



degrees below fixation. Complete color-blindness existed within this larger area, but color perception was normal in the periphery of the field. Here we have a typical case of retro-bulbar neuritis.

Leeches were applied to the left temple, and mercury protiodide

FIG. 4.



was administered internally. No improvement took place, and five days later (April 27) vision in O. S. had decreased to $\frac{5}{45}$, and the blurred area had enlarged (see Fig. 4).

Pain, tenderness, and injection were all more marked. The mer-

cury was then stopped and, instead, sodium salicylate was administered in liberal doses (gr. xv. q. d.). The next day the eye felt very much better, better than it had felt at any time since it was affected, and by the following morning all tenderness and pain had disappeared, and the injection was very decidedly less. Then for the first time, although we had questioned him carefully, we learned that a day or two before this second attack, he had been much overheated and then exposed to the rather cool air for a long time in his wet clothes.

May 1. V. O. S. $\frac{5}{45}$. No absolute scotoma now.

May 3. V. O. S. $\frac{5}{22}$.

May 6. V. O. S. $\frac{5}{9}$ partly. The partial scotoma has been gradually growing less and less dense and amounts now only to a slight haziness. Can recognize colors within this clouded area, except very small color spots in its periphery.

May 18. Vision has gradually improved until now it is $\frac{5}{5}$. It has remained normal in O. D. Form and color fields are normal in both eyes except several small spots in O. S., where color perception is still a little imperfect.

May 29. V. O. D. $\frac{5}{5}$; O. S. $\frac{5}{5}$. Jaeger No. 1, fourteen centimetres to fifty-four centimetres. The edges of the disk in the left eye are still somewhat hazy, and the veins are fuller than normal. The eyes are feeling stronger. He is now taking potassium iodide and strychnine sulphate to aid as far as possible in preventing atrophy. There is as yet not the slightest indication of any atrophy in either eye.

To me the case possessed additional interest from the fact that the attacks which it is natural to suppose were due to a somewhat similar lesion in the two eyes, differed so much in mode of onset, course of symptoms, both subjective and objective, and manner of subsidence.

Surgical Tuberculosis.

Isnardi (Turin, 1894) reports success in the use of oil of turpentine. He uses this partly as an ointment with vaseline, equal parts, in affections of the skin, partly undiluted as an injection into fistulas or abscesses. Fistulas are first curetted, and abscesses are aspirated. Very intense inflammation follows with rise of temperature to 40° C., but with no severe general symptoms. In four to six days abscesses are to be incised, packed with sterilized gauze containing the turpentine ointment. The results as detailed by the writer in eighteen cases in children were most promising.—*Centralblatt für Chirurgie.*

THE ETIOLOGY OF RICKETS.[1]

By Samuel H. Friend, M.D.,

Milwaukee, Wis.,

Physician to the Children's Hospital; Member of the Horatio C. Wood Medical Society of the University of Pennsylvania; Non-Resident Member of the Academy of Natural Sciences of Philadelphia.

As there is no necessity for repeating the vast amount of literature, both speculative and experimental, in regard to the causes of this disease since the time of Hippocrates, Galen, Celsus, Glissen, and others, I will take the sum and substance of all, as deduced by Cheadle, with the hope of elucidating some points in the subjective physiologic processes, in harmony with the present advancement of the medical sciences. Cheadle[2] groups the general pathology as follows:

(1) It is primarily a diet disease, which can be caused at will by rachitic diet as certainly as scurvy by a scorbutic diet, and which can be cured as certainly by anti-rachitic diet as scurvy by an anti-scorbutic diet.

(2) That the chief defect in diet which causes rickets is want of animal fat.

(3) With this, probably, also deficiency of the earthy salts in the form of phosphates.

(4) A deficiency of animal proteid in conjunction with the preceding intensifies the condition.

(5) The rickety state is accentuated by evil external hygienic conditions, such as foul air and want of light, although these are not essential to its production.

(6) Rickets is modified in character by the concurrent existence of congenital syphilis and of scurvy.

These, then, appear to be a group of external causes which, when persistent, within a definite range of time, inevitably produce the same train of deranged function with ultimate derangement of structure throughout the entire organism, which is especially emphasized in the osseous system.

According to the daily habits of absorption these causes are present at all periods of gestation; but, as has been observed, the disease develops most frequently between the sixth and twentieth months of extra-uterine life.

[1] Read at the meeting of the Wisconsin State Medical Society, West Superior, June 20, 1895.

[2] A Discussion on Rickets, British Medical Journal, 1888, Vol. II, pp. 1145-48; Infantiler Scorbut oder hämorrhagische Rachitis, L. Fürst, Berliner klinische Wochenschrift, No. 18, 1895, p. 389; Zur Ætiologie der Rachitis, E. Hagenback-Burckhardt, Berliner klinische Wochenschrift, No. 21, 1895, p. 449.

From observation and experiments of Sutton, Korsakow, the clinical studies of Wegner, Friese, Jacobi, Montmolli, Hartwitz, Hochsinger, Freer, Snow, Forchheimer, and my own limited experience, these causes appear to group themselves in harmony with the following classification:

(1) Suckled immediately and continuously under normal shelter, clothing, atmosphere, and light; under abnormal or deficient shelter and clothing, contaminated atmosphere, and modified light; either a predominance of one or more of these conditions.

(2) Suckled immediately but discontinued within one or several months under normal shelter, clothing, atmosphere, and light; under abnormal or deficient shelter and clothing, contaminated atmosphere, and modified light; either a predominance of one or more of these conditions.

(3) Hand-fed immediately and continuously under normal or deficient shelter, clothing, atmosphere, and light; under abnormal shelter, clothing, contaminated atmosphere, modified light; either a predominance of one or more of these conditions.

(4) Diseases occurring in the mother during or previous to gestation, modifying special structure of fetus or gaseous liquid and solid food to the fetus.

Analyzing this classification in its order, the following considerations are apparent: Some women suckle their children immediately and continuously after birth who absorb normal or abnormal food stuffs under normal environment, as above specified, whose normal secretions and excretions are inhibited either by excessive physical function, domestic difficulties, antagonism to suckling or to the discipline to suckle the child. Again, some persist in doing it where the nourishment is abnormal in quality owing to anatomical insufficiency of vascular and mammary development or other acute or chronic pathologic conditions inhibiting the secretion of milk.

Those suckled under abnormal environment are also prone to the disease where adequate evidence of faulty absorption of milk cannot be found, consequently there must be a predominance of one or more of the abnormal external environments.

In the second and third classification all statistics give ample evidence that the causes exist in the inadequate absorption of the semiliquids in the former case, and in the combination of both semiliquids and external environment in the latter case.

In the fourth classification the evidence of statistics indicates that syphilis especially predisposes to the uterine and congenital form through the modification of certain structures or the production of abnormal gaseous, liquid, and solid food stuffs to the fetus.

INTERNAL RESULTS OF EXTERNAL CAUSES ANALYZED SPECIFICALLY.

Following the order of precedence of the symptomatic, pathologic, and ultimate therapeutic effects of this disease minutely, an interesting and strong chain of evidence is indicated, which throws considerable light upon the direct or internal causes of the changes observed. In the daily history of the development of this condition, the examination of the rectal excretions is especially important. Minute inquiry or direct day by day observation will reveal many periods of the occurrence of diarrhea or constipation or an alternation of both. The properties of the stool will be as follows:

Unformed or formed, according to diarrhea or constipation, abnormally soft or hard consistence, abnormal color, excessive or diminished weight, pungent odor or none. Chemically, in the former case, extremely acid, and in the latter, very slightly acid or neutral reaction. The urine, according to Marchand, Ephraim, and Lehman, has an increase in the proportion of phosphates of lime and the presence of lactic acid, and, according to Ephraim, an increased elimination of uric acid. The spells of crying, restlessness, sleeplessness, the periodical tympanites, and various other symptoms, all of which are persistent and marked when the disease is fully developed, are very suggestive. After the disease has developed, the predominant pathological picture of the enlarged bone is of equal meaning, which, with the results of diet and a new environment, as therapeutic measures, completes the chain of evidence which may be interpreted as follows:

That, whether the external insufficiency be a predominant absorption and action of one or a group of causes, they cannot stimulate, within the organism, normal secretion and excretion of end products in any organ, consequently they cannot stimulate any of the normal activities in any of the cells of the entire organism.

As the histories of all cases indicate, the development of the disease is a cumulative process, and suggests the following internal effects according to the predominance of one or a group of the above external causes. Under the first part of the first grouping all environment is normal, consequently the predominant cause is the semiliquid matter absorbed, and accordingly we must look for the immediate effect of this matter upon the organ whose function is stimulated and follow the remote effect. Absorbed by the stomach, this organ exerts its excretive and secretive activities, and as the product is abnormal, it cannot exert more than a definite range of conversion. As suggested by the stool, intestinal with pancreatic and biliary products do but little converting, for, as a rule, there can be observed almost the original curds precipitated by the first process of digestion. Remedial

measures may or may not be taken immediately. If they are, there is an attempt made to compensate the digestive processes by giving general directions to the mother in regard to diet, routine, hygiene, etc. Tracing the history of these paroxysms minutely, days and weeks of gastro-intestinal derangement can be found to have occurred. The secretions and excretions of the stomach, liver, pancreas, and consequently the fluids and solids of the blood, are being gradually changed in the attempt to compensate all activity, in harmony with the abnormal external conditions. Observing gastro-intestinal activity, we find, as a rule, excessive tympanites, indicating a simultaneous fermentative process, produced by the action of bacteria upon abnormal end-products, over which the now chemically-changed biliary products have no bactericidal control, nor have any of the excretive functions of the intestines, kidneys, skin, and lungs the power to throw off these poisonous products as rapidly as they are produced. The result is that the chemically-changed secretions and also these toxines accumulate more and more. Respiratory symptoms may or may not have been synchronous with the intestinal symptoms or may have preceded them, they being caused, as are the intestinal symptoms, by the irritation of the changed chemical secretions and excretions, augmented by the absorbed toxines. Insidiously the poisonous accumulations produce their pathological processes upon every secretion, excretion, and ultimately upon the structure of the entire organism. Evidence of this exists in the changes in the blood and blood-making organs, as is indicated by the diminished number of red blood-corpuscles, relatively increased white, and consequent relative hydremia. There is also a diminution in the quantity of salts. The increased size of the long bones at the epiphysis, their pliancy and softness, they being more easily cut with a knife as compared to the healthy bone at the same stages of development; the color of the bone, which is deeply reddened as though soaked with blood, being most strikingly observed at the junction of the epiphysis with the diaphysis, etc., as is described by Friedlaben, Senator,[1] Kassowitz,[2] and many others.

Under the second part of the first grouping: Abnormal or deficient shelter and clothing, contaminated atmosphere, modified light, I include exposures to variations of temperature and moisture, toxic gases, liquids and solids, exclusion of sunlight. These conditions can be observed in large cities where poverty is so great that mothers can-

[1] Ziemssen's Cyclopedia of Medicine, Vol. XVI, Eng. Trans., pp. 165–228; Keating, Cyclopedia of the Diseases of Children, Vol. II, pp. 224–264.

[2] Die normale Ossification und die Erkrankungen des Knochensystems bei Rachitis und hereditares Syphilis, Wien, 1881–85.

not shelter infants in proper clothing and house, with artificial heat, in harmony with the altitude, latitude, season, day, hour, and minute variations of temperature and moisture. Nor can they afford to live in localities where the ground is free from defective water and sewerage, but in crowded districts where sunlight is rarely known. Bathing is an occasional, not a daily, habit in those districts, owing to poverty and a lack of fuel. A predominance of one, or, as is usual, a group of these conditions, acts not only upon the infant, but upon the nursing mother, which combined with poor food owing to poverty deteriorates her milk, so that every condition exists externally for the internal production of the physiological picture above detailed which determines rickets.

Under the first part of the second grouping: Suckled immediately, but discontinued within one or several months under normal environment; as a rule, the gastro-intestinal symptoms are so severe that a wet-nurse or hand-feeding is an immediate necessity. Here the physiological conditions are bettered gradually, and if hand-feeding is resorted to, and care not taken to imitate mother's milk, the paroxysms of deranged function, which indicate the necessity for periodical changes of food, will result in an ultimate marked rickety condition.

In the second part of this grouping the additional causes of inefficient environment are present with the additional factor, if there is hand-feeding, which is most likely, of filthy bottles, nipples, and, perhaps, unsterilized foods.

Under the first part of the third grouping the great danger lies in not attempting to give foods simulating mothers' milk. If great care is not used in mixing the proper percentage of animal fat, earthy salts, proteids, the matter absorbed, will change secretions and excretions, so that they change the chemical structure of the cell, from their normal percentage of fats, salts, and proteids, which with or without bacterial activity make the secretions and excretions toxic products and, as above detailed, produce rickets.

In the second part of this grouping there are the additional causes of abnormal environment with the greater possibilities of contamination by minute organisms of not only the food itself, but, as above, the nipples and bottles.

In the fourth grouping, according to all statistics, syphilis appears to be pre-eminent in the production of both uterine and congenital rickets. Theoretically, any long-continued impairment of the excreting organs, with the consequent retention and concomitant chemical changes of all secretions, would have a tendency to produce this disease.

This evidence with that of the experiments with the secretions of man and animals, referring especially to the serum of the blood and its irritant action, and the experiments of Cohnheim and Lichtheim,[1] in producing an artificial hydremia, then observing the action of some toxic substance upon tissues, suggest how the changes in the blood and blood-producing organs may be produced by the chemically-changed secretions and blood, containing toxines, absorbed from the intestines. They explain, to a certain extent, the abnormal cell-proliferation throughout the entire organism, which is especially marked in the osseous system, where the softening may not only be due to this, but also to the abstraction of earthy salts by the blood, in its attempt to compensate itself for the diminished quantity present.

While the action of these abnormal chemical changes will partially explain the etiology of this disease, the question must arise in every mind, why this disease does not occur in all long-continued gastro-intestinal paroxysms. We know that in them there is also an absorption of toxines from the intestinal tract, and, as is indicated by the symptoms, a chemical change in all secretions and excretions of all organs. As a rule, these cases either recover or die, and, in the former case, leave no trace of diseased organs, as in rickets. These facts are so apparent that they require an explanation. They certainly indicate that combined with the irritant action of changed secretions and excretions there is something else to be considered in the determination of the etiology of this disease to account for the uniform pathological and symptomatic picture.

For the past year I have had a case of cretinism under observation and treatment, and upon comparing the symptoms and pathology of this case with cases of rickets, the evidence indicates that it began as rickets. These facts are in harmony with the studies upon cretinism by Fodéré, Virchow,[2] and others. They indicate, therefore, that whether cretinism is due to an atrophy or hyperplasia of the thyroid gland, there is, when either of these conditions occur, a derangement of function in the entire organism, which is emphasized in the blood, lymphatics, bones, and skin. Through the work of Gall, Ord, Reverdin, Kocher, Schiff, Fuhr, Sanguirico, Canalis, Bircher,[3] Horsley, Halliburton,[4] and many others, the artificial use of this gland and its extract has modified these conditions and in a measure confirmed the importance of this gland. These considerations have sug-

[1] Ueber Hydrämia und hydrämisches Oedem, Virchows Archiv, 1877, Band LXIV, pp. 106–142.

[2] Gesammelte Abhandlungen; Zur Pathologie des Schadels und des Gehirns, pp. 887–1014; Der Kretinismus, Dr. Vincenzo Allara; German translation from Italian, by Hans Merian, Leipzig, 1894; Cretinism and Myxedema, Hanau, Brit. Med. Journ., 1890, II, p. 786.

[3] Volkman, Sammlung klinischer Vorträge, No. 357.

[4] Remarks on the function of the thyroid gland, Brit. Med. Journ., 1892, I, pp. 215–219, 265–268.

gested that the external and internal causes of rickets, as above enumerated, in producing abnormal secretions and excretions throughout the entire organism and, therefore, of the thyroid gland, destroy the co-ordinating power possessed by these secretions and excretions, and in consequence the inflammatory processes occur, as is suggested by the pathology. I have further found that "Levrat[1] observed ten children, from 11 to 15 years of age, having lateral curvature of varying degrees, accompanied by goitre, which, according to the parents' statements, had developed gradually with the lateral curvature. In four cases there were enlarged wrist-joints, like those seen in rickety infants, and two cases had knock-knee." I have at present two cases of rickets under observation, which are receiving tabloids of the extract of sheeps' thyroid.[2] One has been under treatment for four weeks and the other three weeks. Both are doing remarkably well. In a future communication I hope to give details of the treatment and the progress observed, and at the same time hope that others will report their experience in the use of this extract in the disease when fully developed, or in its prodromal stages, so as to determine the value of the therapeutic evidence in this etiology.

RICKETS: ITS PREVALENCE IN EASTERN OHIO.

By J. P. West, M.D.,

Bellaire, Ohio.

For two and a half centuries rickets has been recognized as a distinct disease. For the past two and a half decades one would think it had been common enough and sufficiently written upon to be recognized by all. Its prevalence and frequency in large cities are now well known ; observation and inquiry will early convince one that the converse of this is true in many towns and country districts. Here it is only an occasional practising physician who recognizes and treats the disease, many of the others considering it a rare affection, seldom or never seeing it, while a few even deny its existence altogether. The number of cases the writer has seen in his own practice and in the practice of other physicians has convinced him that rickets in some form is one of the most, if not the most, frequent chronic diseases of children with which the physician comes in contact.

[1] Annales d'Orthopédie, Paris, December, 1892

[2] "A case of tetany treated by thyroid extract," Byrom Bromwell, Brit. Med. Journ., June 1, 1895, p. 1196. Since this paper was read and submitted for publication, I have had the pleasure of reading the above report of case and its suggestions. My own cases of rickets referred to, treated by thyroid extract, began taking it on May 27 and June 4.

The reasons for its non-recognition are not hard to find. There are still men, now happily few, occupying positions as teachers in our medical colleges who deny that rickets is at all a frequent disease in this country, even in the cities. The text-books are misleading in making the statement that "it is comparatively infrequent in rural localities." Formerly the most that the small-town and rural practitioner read of rickets was in obstetric works in which it was quoted as one of the causes of difficult labor, usually qualified by the further statement that this condition would only be found in women of foreign birth. It is pleasing to note that the most recent writers on obstetrics are correcting this idea. Many students leave college with the impression that it is only the unhygienic surroundings, and particularly the impure air, in large cities, that result in the development of this disease, and, so believing, do not expect to see it, and consequently fail to recognize the mild cases, and often the severe ones also. Not a few entertain the idea that rickets is confined almost entirely to negroes and immigrants. While it is true that these people are the most frequent and severest sufferers, cases are not rare in the best families of the native born. One principal reason for its non-recognition is the mistake made by some of considering rickets a disease of the bones only, instead of a disturbance of nutrition.

Improper food and improper feeding have been the causes of almost every case of rickets that the writer has seen, and this nutritive causation is usually easily proven. Overworked, nervous, and easily worried mothers on a farm produce a milk containing but 2 or 3 per cent. of cream; a milk manifestly unfit for the proper nourishment of a child. Mothers who drink from four to six or more glasses of beer daily are not unknown in small towns; they usually have an abundant supply of milk, which is, however, poor in fat. Many children are taken to the table early in their existence and fed a little of whatever is before them, irrespective of their ability to assimilate such food. If this does not so interfere with their nutrition as to cause them to develop rickets, a diet suitable only for an adult will be given them as soon as they are weaned, and then they are almost sure to develop the disease. A few cases can be traced to canned condensed milk and the proprietary foods. Such cases are usually fat and plump-looking until a slight illness reveals their true condition. If impure air acts at all as a cause, it is in but a very few cases. This has sometimes seemed to be the causative factor in children who had been confined to the house during the entire fall and winter with no more fresh air entering the room than could steal in through the cracks and crevices. Often, however, the food is as bad as is the ventilation. This, as an etiologic factor of rachitis, plays but a very

small part, and it is upon improper feeding, which prevails to a considerable extent everywhere, in city and in country, that the greatest stress is to be laid.

It has been the lot of the writer to encounter rickets of all grades of severity, from the slight disturbance that hardly merits the name to a degree of development sufficient to cause death, and of these cases but a small minority have occurred among negroes or immigrants. Not a few of the cases have been of a mild type. Continued crossness or irritability is often due to this disease. It is not uncommon to see a child, formerly thriving and good-natured, cease to grow properly and become cross and fretful. A pale, somewhat thin child from ten to fifteen months old, who has cut two teeth at the fourth or fifth month, and none since, is often the type. Delayed and irregular dentition, as we see it, is seldom due to any other cause. A dislike to being handled, some sweating about the head and kicking the bedclothing off are rarely absent if inquired after, but this information is seldom volunteered by the mother. Not a few cases diagnosed as chronic diarrhea, constipation, chronic bronchitis, marasmus, and teething are rickets, and one of these in a given case the prominent symptom or complication. Careful physical examination, so often neglected, rarely fails to reveal one or more of the well-known signs of the disease in these cases; they are just as truly rickets, however, as are those cases in which all the signs and symptoms are marked; and they should be just as carefully treated, for the systemic condition may cause to result fatally an intercurrent disease that a child free from rickets would have been able to withstand.

There will not be a thorough knowledge of the prevalence of this disease in country districts until there is a proper appreciation of these mild cases and of the fact that many cases are atypical; that not every case will be cross, tender, and emaciated, will sweat profusely about the head, and kick the bedclothing off when sleeping, or will have the delayed dentition, the square head, the large fontanel, the beaded ribs, the pigeon-breast, the large joints, and the crooked extremities. This spring there was exhibited before the Belmont County Medical Society a fat, costive child with pseudo-paraplegia and lateral curvature of the spine. The diagnosis of rickets was questioned for the reason that the child was fat and costive, it being maintained that the opposite conditions should be present. The child was cross and revealed but little sweating when sleeping, and but slight enlargement of the wrists. The fontanel was small, there were the usual number of teeth, and no beading of the ribs could be felt. The brunt of the attack in this case was on the muscles, intestinal and skeletal, and hence the constipation and pseudo-paraplegia. The

scoliosis resulted from the manner in which the child was carried. Anti-rachitic treatment restored it to health. The rural practitioner will soon have to realize that some of his difficult obstetric cases in women born and brought up in his own neighborhood are due to rachitic deformities. This was more than ever impressed upon the writer this past winter by a very difficult forceps-delivery in a primipara, 20 years of age, who had lived all her life in the Ohio Valley. The trouble was due to a very narrow antero-posterior diameter at the brim. Other deformities were also present, and a clear history of rickets in early childhood was obtained from the mother.

Most writers who give an opinion state that rickets was a rare or infrequent disease in this country twenty or thirty years ago. While it may not have been as frequent then as it is now, there is sufficient evidence perambulating the streets of almost every village to convince one that it was not infrequent even at that date. This evidence consists in typical rachitic deformities plainly evident to the eye. The writer has personal knowledge of several individuals from nine counties in Eastern Ohio, adjoining and near to the river, who present these signs, and in many cases he has succeeded in obtaining a plain history of the disease in their early lives. In a few towns in adjoining States he has seen similar cases. These individuals range in age from 25 to 45 years. In this territory, to his knowledge, are eight rachitic dwarfs, three of whose early histories he has obtained from the parents. But one of these dwarfs is a mulatto; three of them are the children of well-to-do Scotch people, and were born and brought up on farms. It is not uncommon to see a square-built individual below the average height, with a large, square head, a prominent forehead and a small face, with bent or bowed legs and arms, and probably flat feet. Examination of a number of such cases invariably shows large rough joints and peculiarly-shaped chests. These are cases that it is natural to infer recovered, excepting the deformities, without anti-rachitic or, more probably, without any treatment. It is a natural inference that others died from the severity of the disease, and still others from intercurrent diseases, or from pulmonary, intestinal, and other complications. It is a still more natural inference that there were yet others who suffered to a lesser degree, and who recovered entirely, or whose deformities are so slight as not to attract attention.

MEMORANDUM.

A CASE OF COMPLICATED STRANGULATED HERNIA.

On June 3, 1894, Dr. James Collins was summoned to see Joseph B., a mechanic, aged 21 years. Patient was found to be suffering from violent cramps, anorexia, and inability to retain food. He had an old inguinal hernia on the right side, which he said had existed for some time. It had not caused him trouble, and could easily be pushed back into the abdominal cavity by the patient himself. However, on the morning of May 31, four days before, he had been lifting some heavy boxes, and said he "strained himself." From that time he became constipated, and the hernia could not be returned to the abdomen as heretofore. On the evening before he was first seen he had taken a full dose of castor oil to purge himself. Violent retching and vomiting followed. He suffered extremely from headache and abdominal pains, but no movement of the bowels took place. When seen his abdomen was tense and exquisitely painful on pressure, pulse was rapid and fluttering, and skin was bathed in cold sweat. The face was pinched and the cheeks flushed. The tongue was heavily coated and breath extremely fetid. Persistent vomiting had occurred during the night of the second, and had now become stercoraceous.

The hernia was found to be irreducible, taxis failing, alike with cold and anesthesia. A high enema was given with negative result. Operation was decided upon, the usual incision over the tumor being made and the intestine exposed. The hernia was about the size of an egg, the gut being of a maroon color, deeply congested. The constriction was relieved, care being taken to examine carefully for other adhesions and to be certain of relieving the constriction before the intestine was returned. The wound was closed by the ordinary kelotomy method, and healing took place by primary union. The patient bore the operation well, and the symptoms rapidly subsided. The temperature returned to almost normal, and passage of gas was noted. Vomiting ceased entirely and abdominal tenderness disappeared. On the following afternoon a saline purge was given, when all the symptoms of obstruction immediately returned,—fever, abdominal tenseness, tenderness, and persistent vomiting. The patient's condition grew rapidly alarming. The imperative necessity of another operation brought up the question of choice of seat. The thorough con-

viction that the constriction operated upon had been absolutely relieved and that another must be causing the trouble led to the selection of a median incision. On opening the abdominal cavity in this position, a careful examination revealed a Littré's hernia about the size of a small pecan nut. The wall of the intestine was very tightly constricted by an adhesive band, and was of a deep mahogany color. A remarkable fact of the case was that four and a half inches below this obstruction the marks of the one relieved could be seen distinctly. The discolored intestine was assuming its normal color, but the difference was readily discernible.

The constriction in the Littré's hernia was very tense and extremely difficult to relieve. This was done successfully, however, and the condition of the congested portion was deemed sufficiently healthy to be returned. The abdominal cavity was flushed for safety with sterilized water and dried as far as possible with gauze pads. A glass drainage-tube was inserted and removed after twenty-four hours.

The patient made a rapid and uninterrupted recovery. The kelotomy incision healed by first intention throughout. The abdominal wound also closed in like manner, except at the point of exit of one of the sutures, introduced at the time of closure, but not tied until after removal of the drainage-tube.

There was no history of previous peritonitis to account for the offending band.

The case is one of those, fortunately rare, in which two strangulations are coexistent and separated widely,—four and a half inches in this case. It was, of course, quite unlikely to have presupposed the existence of the condition, the strangulated hernia readily accounting, and most naturally, for the symptoms. The rapid disappearance of nearly all symptoms after the first operation is somewhat remarkable, but it is well to note that no passage of feces occurred, thus pointing very strongly to the coexistence of the two constrictions, which would be further borne out by the deeply-congested, mahogany color of the bowel.

Dr. Collins asked me to report this case, and at the same time to extend his thanks to Dr. John W. Millick, of this city, who was present and assisted at the second operation.

THOMAS LUTHER COLEY, A.B., M.D.

PHILADELPHIA, June 18, 1895.

CLINICAL DEPARTMENT.

MEDICAL DISPENSARY OF THE HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA.

[Service of Dr. M. Howard Fussell. Reported by T. Mellor Tyson, M.D.]

HEART LESIONS WITHOUT SUBJECTIVE CARDIAC SYMPTOMS.

It is a well-known fact that a severe valvular heart lesion may exist for a long period without giving rise to any distinct symptoms. The following cases serve to emphasize this fact. They also show the necessity of a careful physical examination in all cases, whatever the symptoms manifested. Not only are unsuspected heart lesions thus discovered, but pathological conditions of various other organs are frequently brought to notice. Another fact, well known but lost sight of by younger men especially, is also illustrated by these cases,—namely, that the simple presence of a valvular lesion does not call for the administration of digitalis or other heart tonics. Unless the heart shows signs of failing compensation, such drugs should not be given. The patient's habits should be regulated and a watch strictly kept with an eye to beginning cardiac failure.

Case I.—*Mitral Regurgitation.*—Mrs. B., aged 48 years; housekeeper; family history good. Patient has no history of syphilis, rheumatism, or Bright's disease. Has complained of headache for twelve years off and on. This comes on at any time and is associated with much nausea, always present in the morning. Occasionally vomits, after which headache is relieved. The vomited material is greenish and of a bitter taste. No flatulence; eructations relieve her; bowels are irregular and head is not relieved by their being opened daily. Vertigo occasionally in the morning; tongue is slightly coated and flabby; has to get up once or twice during the night to pass water. No palpitation. Urine negative.

Physical Examination.—Apex-beat in fifth interspace a little outside of mid-clavicular line. Superficial cardiac dulness is bounded by fourth rib, mid-sternum, and just outside of mid-clavicular line. With the first sound at the apex there is heard a systolic murmur transmitted to the axilla.

Case II.—*Mitral Regurgitation.*—Fredk. S., aged 25 years; janitor; family history good. He has had rheumatic pains since 16 years

of age, but no history of syphilis or Bright's disease. Lead-poisoning five years ago; moderate drinker. Comes complaining of pain in the left hypochondriac region for the last six years. Aggravated by over-exertion, food, smoking, and drinking. Bad taste in the mouth in the morning and foul breath. Some nausea; no vomiting; has vertigo; gets up once or twice during the night to urinate; strength very poor; appetite poor; bowels regular. Urine negative.

Physical Examination.—Apex-beat diffuse and beneath the sixth rib. Superficial cardiac dulness normal. A soft systolic murmur is heard over the whole body of the heart; best at apex, transmitted to the axilla.

Case III.—*Mitral Regurgitation.*—Mrs. M., aged 48 years; house-work; family history good. Has had a previous history of rheumatism, but no history of syphilis or Bright's disease. Has had pain off and on in right shoulder all winter and was unable to move the joint freely. It is chiefly in the deltoid and biceps, and there is tenderness to pressure. No edema; no palpitation; appetite good; bowels regular; urine negative.

Physical Examination.—Apex-beat in normal position. Superficial cardiac dulness normal. There is a murmur with the first sound at apex, loud blowing and transmitted to the axilla. It is also heard over the base of heart.

Case IV.—*Mitral Regurgitation.*—Thos. P., aged 30 years; clerk; family history good. He has had the diseases of childhood. No history of syphilis, rheumatism, or Bright's disease. The first symptom noted was cough produced by a tickling in throat, with muco-purulent expectoration, but no pain or soreness. Had flatulence but no vomiting; appetite good; bowels constipated; urine negative.

Physical Examination.—Apex-beat in normal position. Superficial cardiac dulness normal. The impulse of the heart is unnaturally forcible and rapid. There is heard a dull, systolic mitral murmur at the apex transmitted to the axilla. Lungs negative.

Case V.—*Mitral Stenosis.*—Bridget L., aged 25 years; house-work; family history good. She has always been healthy and has no history of syphilis, rheumatism, or Bright's disease. For the last four weeks has had pain in the left knee, which gradually extended over the whole body, but especially marked in the shoulder. Urine negative.

Physical Examination.—Apex-beat in normal position. Superficial cardiac dulness is bounded by second interspace, right border of sternum, and inside nipple line. In late diastole there is a loud rumbling murmur, increasing in volume, ending in a short flapping first sound. The first sound at the aortic cartilage is louder than the second. Redu-

plication at pulmonary area; second sound loudly accentuated and rough.

Case VI.—*Mitral Stenosis.*—Mrs. C., aged 40 years; housewife; family history good. Has had all the diseases of childhood and rheumatism, but no syphilis or Bright's disease. Complaining only two weeks with soreness in the side and sometimes in the stomach. Some headache; no dyspnea, palpitation, or edema. Flatulence; eructations. Tongue coated and flabby; tooth-marked. Urine negative.

Physical Examination.—Apex-beat in normal position. Thrill at apex. Superficial cardiac dulness is bounded by third interspace, left border of sternum, mid-clavicular line. A murmur at apex occurring late in diastole beginning as a low murmur, gradually increasing in volume, and ending in a loud flap-like first sound. Heart action regular.

Case VII.—*Aortic Regurgitation.*—Mrs. R., aged 29 years; house-work; family history good. Had acute inflammatory rheumatism, but no history of syphilis or Bright's disease. Has been ailing with headache and hot feeling in head for some time. Pain, throbbing and constant. Scalp is tender to the touch. Left arm has been swollen and very painful. Vertigo at times; no edema; vomits; has to get up at night to urinate. Tongue heavily coated with a brownish fur. Urine negative.

Physical Examination.—Apex-beat is not visible, but on palpation is found in the fifth interspace outside the mid-clavicular line. Visible pulsation in the subclavian and carotids. Superficial cardiac dulness is bounded by the upper border of fourth rib, left edge of sternum, and just outside mid-clavicular line. Over the aortic cartilage with the second sound is heard a high-pitched, prolonged, diastolic murmur, which is transmitted down the sternum to the xiphoid, and which is also transmitted to the apex. Heard most distinctly at the left border of the sternum, at junction of the fifth rib. Heart action regular. First and second sounds are clear.

Case VIII.—*Aortic Regurgitation.*—James M., aged 44 years; rigger; family history good. Has had rheumatism, but no history of syphilis or Bright's disease. Complains of severe pain across small of back and in the inguinal region, relieved by drawing up his legs and by pressure on the abdomen. This has been troubling him for the last two years, and started after very heavy work with pain in the region mentioned, with a strong desire to urinate. At this time passed a good deal of blood when he urinated, but at present passes no blood. Lost considerable weight. Urine negative.

Physical Examination.—Apex-beat, normal position. Marked

cardiac pulsation, in which the whole chest moves. Marked pulsation of the arteries. Superficial cardiac dulness is bounded by fourth rib, left border of sternum, nipple line. At apex first sound rather short. At aortic cartilage first sound rather weak and second sound somewhat accentuated. Just to left of median line of sternum, opposite fourth interspace, there is a very distinct, rather high-pitched, diastolic murmur, which is conducted towards the xiphoid cartilage. This murmur is not audible at the aortic cartilage.

CASE IX.—*Aortic Stenosis and Regurgitation; Mitral Stenosis and Regurgitation*—Mary A., aged 34 years; house-work; family history good. Had chorea when a child. Acute muscular rheumatism at the same time. No syphilis or Bright's disease. Ailing four years. Began with an attack of influenza with cough, which continues and is worse at night. Expectoration greenish and profuse, especially in the morning. No hemorrhage, dyspnea, or cardiac palpitation. No edema; no vertigo; no flatulence; some nausea and vomiting; urine negative.

Physical Examination.—Apex-beat at fifth interspace, mid-clavicular line. Superficial cardiac dulness could not be obtained exactly on account of her clothing, but it seemed slightly increased in extent. At the aortic cartilage there is a systolic murmur transmitted to the vessels of the neck, and a diastolic murmur, heard better down the left border of the sternum than at the aortic area. It is also transmitted to apex. There is a mitral systolic murmur carried to the axilla, and there is also a presystolic murmur at the apex and a thrill as well. Lungs negative.

CASE X.—*Mitral Regurgitation and Aortic Stenosis.*—Albert B., aged 19 years; weaver; family history good. Had the diseases of childhood, but no history of syphilis, rheumatism, or Bright's disease. Was perfectly well until a month ago. Complains of vertigo and pain in the head, followed by pain in the stomach, at times very severe. Worse upon getting up in the morning. Some nausea; no vomiting; considerable headache; no dyspnea; slight cough; expectoration; no hemorrhage; lungs negative; urine negative.

Physical Examination—Apex-beat in normal position. Superficial cardiac dulness is bounded by the fourth rib, middle of sternum, an inch inside nipple line. At apex there is a marked systolic murmur, conducted into the axilla, and heard well under the angle of the scapula. There is also a slight systolic murmur at the aortic cartilage, transmitted to the vessels of the neck.

CASE XI.—*Mitral Regurgitation and Aortic Stenosis.*—Milfin P., aged 40 years; family history good. Says he has always been healthy, except that he had rheumatic fever at the age of 23, which lasted fourteen weeks. No history of syphilis or Bright's disease. Has

been suffering for the last three years with pain in the epigastrium. Worse after eating and between meals. Lifting after meals makes it worse. Pain varies in location; principally centres around the xiphoid. Belches a good deal at times. No vomiting. Tongue coated and flabby. Has been accustomed to eating rapidly and working immediately after meals. No vertigo, headache, edema, or palpitation. Urine negative.

Physical Examination.—Apex-beat rather diffuse just inside of nipple line, fifth interspace. Superficial cardiac dulness is bounded by fourth rib, left border of sternum, and just inside of nipple line. At the aortic cartilage there is a short, sharp, systolic murmur, not heard in the vessels of the neck. Second sound remarkably sharp at sternal end of the third rib. On the left side there is a systolic murmur heard at apex and axilla.

CASE XII.- *Mitral Regurgitation and Aortic Stenosis.*—John H., aged 38 years; foreman; family history good. Has had measles, whooping-cough, malarial-fever, and many symptoms of syphilis, but does not remember any primary chancre. Uses tobacco and liquor considerably. Comes complaining for the past two months of a sense of stiffness, with but little pain in the lumbar region. No tenderness on pressure, and pain increased by exertion. This is worse in the morning. No edema, dyspnea, or cardiac palpitation.

Physical Examination.—The apex-beat is in the mid-clavicular line. The superficial cardiac dulness is bounded by the fourth rib, left border of sternum, and mid-clavicular line. At the apex there is a soft systolic murmur, which is transmitted to the axilla. There is also heard a systolic murmur, rough in character, at the aortic cartilage. The second pulmonary sound is accentuated. There is also some increase in arterial tension and a beginning arcus senilis.

CASE XIII.—*Mitral Regurgitation and Aortic Roughening.*—Ella C., aged 56 years; house-work; family history good. No history of syphilis, rheumatism, or Bright's disease. Since an attack of influenza in the winter has had cough and running of the eyes, also a great deal of pain in the head; vertigo. No expectoration, dyspnea, edema, or hemorrhage. Pain in the epigastrium. Very nervous; acid eructations; fetid breath; lungs negative; urine negative.

Physical Examination.—The apex-beat in the fifth interspace to the right of nipple line. Superficial cardiac dulness is bounded by the third rib, mid-sternum, and nipple line. With the first sound at apex there is heard a strong murmur, occurring late in the systoli and transmitted to axilla At the aortic area is heard a murmur, systolic in time, transmitted to the vessels of the neck.

CASE XIV.—*Mitral Regurgitation and Aortic Roughening.*—

Patrick W., aged 24 years; engineer; family history good. Has no previous history of syphilis, rheumatism, or Bright's disease. A very heavy smoker. On first visit complained of flat feeling in the stomach with eructations of gas. Pain in the epigastrium. No dyspnea. Has vertigo. No cough, headache, or urinary symptoms. Urine negative.

Physical Examination.—The apex-beat is in the fifth interspace, just inside nipple line. Heart action regular. Superficial cardiac dulness is bounded by lower border of fourth rib, left border of sternum and nipple line. With the first sound at apex there is a soft, blowing murmur distinctly transmitted to axilla. There is also a systolic murmur at the aortic area, which is rather rougher in character than the other and not very distinct and transmitted to vessels of neck. No thrill in the region.

It will be seen that most of these cases had for the most part symptoms of dyspepsia without any heart symptoms whatever, and if a physical examination had not been made, would have been treated for dyspepsia only.

ALUMNI NOTES.

For the University Fund.

Mr. Harrison announces the following additional contributions to the University Fund: A contributor whose name is withheld, $50,000; Charles A. Furbush, $10,000, for the Dormitory Fund; Josiah Kisterbock, Jr., $1000; Edward Clinton Lee, $1000; Alfred C. Harrison, $1000; Edmund Allen, $1000; Lincoln Godfrey, $1000; Morton McMichael, $1000; James F. Hope, $500; Charles D. Norton, $500; Charles Este, $500; Walter Hatfield, $500; C. Pardee, $500; B. C. W., $500; R. C. D., $500; John Dignan, $500; William Mann Company, $500; Mahlon K. Smith, $500; William H. Scott, $500; John Stewardson, $200; Frederick W. Sutterlee, $100; Walter Bradley, $100; Harry B. French, $100; Samuel H. French, Jr., $100.

Mississippi Valley Medical Association.

Dr. William Pepper delivered the annual address before the Mississippi Valley Medical Association, recently in session in Detroit. His subject was the life and work of Dr. Daniel Drake, who died in Cincinnati in 1852, and who was generally recognized as the leading medical man of the West.

A New Lecture-Room in the Medical Hall.

During the summer vacation a number of important improvements have been made to the Medical Hall, including a new lecture-room on the third floor of the building. This apartment was formerly occupied by the Wistar and Horner Museum. The arrangement of the seats as well as their construction is of the latest design. The lecture-room is about sixty feet square, and will accommodate 500 students.

Necrology.

Dr. Mahlon P. Hutchinson, of Philadelphia, died at Atlantic City on September 16, 1895, after an illness of nearly two years. Dr. Hutchinson was educated at the University of Pennsylvania, and practised his profession for many years in Philadelphia. In later life he turned his attention to commercial undertakings, being one of the Board of Directors of the Chesapeake and Delaware Canal Company, and at one time president of the board.

Dr. Howard H. Withers, aged 54 years, a well-known physician of Lancaster, died on September 16, 1895. He was born in Strasburg, Lancaster County, and was a graduate of the University of Pennsylvania.

A Rare Case of Stupor, with Forced Feeding for Nine Years.

Gadelius had an interesting case under his care,—that of a tailor, aged 32 years (*Hygeia*, LVI, No. 10, p. 355), an assiduous workman, slow, taciturn, but amenable to reason. Insanity of persecution developed, the prominent symptoms being anxiety and insomnia, with neglect of his person and refusal to take food. When spoken to he invariably answered, in an undertone, "Fine weather, to-day," and, later on, "I do not know." Forced feeding was carried on uninterruptedly from April 24, 1883, to February 12, 1892, the body-weight increasing during this period from 46 to 73 kilogrammes (101 to 160 pounds). From April, 1883, to May, 1886, he remained in a condition of complete stupor and anesthesia. The author considers the prodromic delirium as a quasi-paranoiac psychosis in a degenerate subject, and regards the case as a psychosis of exhaustion, being practically a condition of syncope from beginning to end. On awakening from the stupor, the patient had lost most of his former knowledge of things and places, but soon recovered it.— *Universal Medical Journal.*

EDITORIAL.

OPERATIVE INTERFERENCE IN GRAVES'S DISEASE.

The treatment of Graves's disease by internal remedies is in most instances far from satisfactory. Occasionally the symptoms disappear spontaneously, or yield to the judicious use of tonics, antispasmodics, and cardiac sedatives. Thyroid extract has been tried and found wanting, and, from our knowledge of the physiological action of the remedy, its failure might have been anticipated. That galvanism, systematically applied, is capable of effecting a cure in certain cases cannot be denied. Too often, however, after all therapeutic measures have been exhausted, the patient still remains a hopeless sufferer from the distressing cardiac and nervous symptoms peculiar to the disease. In such cases as these, where the usual remedies have proved futile and the patient's health is seriously impaired, we believe that the advisability of invoking surgical aid should be carefully considered, since operative interference seems to offer a fair chance of effecting a cure without entailing very great risks.

A study of the physiological action of thyroid extract and of the influence of thyroidectomy on exophthalmic goitre indicate, although the pathology of the latter disease is still undetermined, that many of its most troublesome symptoms are due to a perversion of the function of the thyroid gland. The two operations which have been practised with the view of eliminating the influence of the offending body are thyroidectomy and ligature of the thyroid arteries. The former operation is the older one, a record of its first performance in exophthalmic goitre having been published by Watson in the *Edinburgh Medical Journal* of September, 1873. The radical operation, however, of completely extirpating the gland, having been frequently followed by cachexia strumipriva, has been entirely abandoned, and at present only one lobe of the gland is removed, the larger one generally being selected. Ligature of the thyroid arteries has not been performed so extensively as thyroidectomy, but on the whole the results compare very favorably with those of excision, and, moreover, the operation is of less magnitude.

That the operation of thyroidectomy itself is not attended with

great danger is evident from the results obtained by Kocher, of Berne (*Boston Medical and Surgical Journal*, May 23, 1895). This operator reported at the German Surgical Congress, held in Berlin on April 17 of the present year, a series of 1000 cases of excision of the thyroid gland for goitre. Of the 900 cases in which partial extirpation was practised, cachexia strumipriva resulted in only one case, and in this instance the cachexia was attributed to a secondary atrophy of the remaining portion of the gland. Of the 800 non-malignant cases only eleven died, a mortality of a little over 1 per cent. Of the fatal cases one was moribund when brought to the clinic; one had an intra thoracic goitre with general edema; three were of the exophthalmic variety, in whom the conditions for operation were poor on account of the size and brittleness of the vessels, so that ligation of only three arteries was possible; one died of interstitial nephritis, two of influenza followed by pneumonia; one of bronchitis, excited by the inhalation of ether; and two of infection incurred during a secondary operation for recurrence. In simple goitre, non-malignant or exophthalmic, Kocher had only three deaths in 900 excisions, and in one series of 272 operations there were no deaths. Alterations of voice, paralysis of the larynx, etc., according to the author, can almost always be avoided in carefully-performed operations. These accidents were observed in 7 per cent. of the cases, but disappeared in the non-malignant types of the disease.

In the discussion which followed the reading of Kocher's paper, Krönlein stated that in 200 operations for goitre he had had no deaths, and that he had cured eight cases of Basedow's disease by excision of the thyroid. Trendelenburg also remarked that he had operated in six cases of Basedow's disease,—once by excision, which resulted in severe hemorrhage, once by ligature of three arteries, and four times by ligature of all four arteries. In every instance marked improvement followed the operation.

In a series of twenty-nine cases of exophthalmic goitre operated upon by Stierlin, Wölfer, Lempke, and others, twenty-two were cured, two improved, two not benefited, one died, and in one the result could not be ascertained. In a monograph by Chamberlin (*De la Maladie de Basedow*, Paris, 1894), Marie, who has contributed much to our knowledge of the clinical phenomena of exophthalmic goitre, is quoted as making the following remarks bearing on the subject of the operative treatment: "All I can say is that I have seen a certain number of the subjects of Basedow's disease die a miserable death, and that in the presence of such a disease, having such grave symptoms, I shall no longer hesitate to advise a surgical operation, the results of which have been shown to be favorable in 80 per cent. of the cases on which it has been performed."

Notwithstanding the low mortality of thyroidectomy in simple goitre, the operation is more dangerous and much more difficult in Graves's disease, on account of the vascularity of the parts, whereby the risk of copious hemorrhage is greatly increased. Kocher, whose excellent record has already been quoted, now prefers to ligate the arteries in these cases rather than to excise the gland. The results obtained from ligation indicate that the operation is safer than thyroidectomy, and at the same time quite as efficient, although improvement in the symptoms is less prompt than after removal of the gland. So far as the danger of the development of cachexia strumipriva is concerned, it is apparently no more apt to occur after ligation of the thyroid arteries than after partial excision of the thyroid body. Rydygier, of Cracow, states that he has ligatured all four arteries twenty times without producing cachexia.

THE ANTIBACTERIAL ACTION OF ACETANILID.

Recent experiments would seem to indicate that acetanilid may be of service not only as an antipyretic and analgesic, but also as an antiseptic. Dr. Francis M. Harrell, a surgeon of the Seattle Coal and Iron Company, first proved its efficiency as a local dressing in a class of wounds which are generally very difficult to heal on account of their contamination with coal-dust and other foreign matter, and published his results in the *Medical News* of October 14, 1893. Since then several observers have furnished very encouraging reports of the value of acetanilid as a substitute for iodoform. This clinical evidence has been recently confirmed by a series of laboratory experiments conducted by Frothingham and Pratt, of Yale University (*American Journal of the Medical Sciences*, August, 1895). The pus-producing micrococci-staphylococcus pyogenes aureus, staphylococcus pyogenes citreus, and bacillus pyocyaneus were selected for the experiments, and in every instance the inhibitory influence of acetanilid on the growth of the micro-organisms was decidedly more marked than that of iodoform. A curious fact observed in the experiments was that in the tubes containing 1 per cent. of acetanilid the inhibitory influence was more noticeable than in those containing 5 per cent. and 10 per cent. of the drug. Another series of experiments demonstrated that as a germicide acetanilid was far less active than as an antiseptic.

It is to be hoped that further research will confirm these observations as to the antiseptic properties of acetanilid, for its cheapness and freedom from odor and from toxic properties when used locally would make it a most desirable substitute for iodoform.

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.,

ASSISTED BY

M. HOWARD FUSSELL, M.D.

The Etiology of Articular Rheumatism.

Chvostek (*Wiener klinische Wochenschrift*, No. 26, 1895) criticises very severely Singer (*Ibid.*, No. 25, 1895), who, examining the urine of seventeen patients suffering with acute articular rheumatism, came to a positive result in sixteen cases. In ten cases he found the staphylococcus albus; in one case, the staphylococcus aureus; in three cases streptococci, and in two cases both the staphylococcus albus and streptococci. The constancy of their presence, the number of colonies, and the fact that the colonies with improvement of the clinical symptoms diminished greatly in number or altogether vanished, led Singer to conclude that these cocci were the cause of the disease, and that etiologically there was no one factor responsible for rheumatism. Chvostek, on the other hand, in nine of twelve cases came to absolutely negative results. In one case he found the diplococcus ureæ; in one case (the urine having not been drawn with a catheter) he found the staphylococcus albus, and in another case, a large coccus, probably from the urethra. The cause of this divergency of results is to be found in the methods of investigation, the urine in Chvostek's cases being withdrawn with a catheter. In the urine from normal individuals which had not been withdrawn with a catheter, in ten of eighteen cases he found cocci, among them staphylococcus albus and aureus. When withdrawn with a catheter, the urine was sterile. Investigations by Kraus (*Ibid.*, No. 26, 1895) showed that during the course of various infectious diseases, there may be excreted with the urine bacteria which have no etiological relationships whatever with the disease in question, and, curiously, as the disease mitigates the bacteria disappear. Chvostek, therefore, thinks that Singer was not justified in looking upon these bacteria as the cause of rheumatism, and suggests that, examining the urine of other patients with various infectious diseases, Singer would come to the same results as did Kraus. Chvostek also examined the blood, urine, and articular fluid of twelve cases of rheumatism, and in a larger number of cases made examinations of the articular fluid and other organs,—tonsils. The results were negative in all cases regarding the synovial fluid unless the joint affection was septic or gonorrheal. The positive—from Chvostek diverging—results obtained by others is explained on assertion of the fact that they did not exclude joint affections occurring during the course of sepsis, and that many examinations were made post mortem. Chvostek found that in animals a migration of bacteria into the joints took place very soon after death, and that these micro-organisms were especially those found normally

in the animal, as in the intestine. Regarding the question, if bacteria, when in the blood, might invade the joints *intra vitam*, his experiments showed,—

(1) That vessel walls not demonstrably altered anatomically are permeable to bacteria; some alteration appears, however, necessary.

(2) That the anatomical structure of the synovia and its vessels impedes the passage of bacteria, and that they pass into the joint much slower than they pass through other structures, the renal vessels for instance.

(3) That the passage of the bacteria depends upon their kind, their virulence, and other factors, chiefly nervous influences.

He concludes that the joint affections of the cases of rheumatism examined were not due to any direct bacterial invasion. The causes must be sought in toxic substances which, under certain circumstances, exert their influence; not only the toxines of certain micro-organisms, but also certain chemico-toxic substances (intestinal). That these substances act upon the joints is due to many factors: anatomical structure, exposed position of joints, and the continued mechanical irritation of motion. These injurious substances act considerably on the nervous system, which is in great measure responsible for the joint swelling. He does not deny that in some cases of rheumatism micro-organisms may be found in the joints. Almost any or very many bacteria may excite the disease, and they may effect an entrance into the body almost anywhere, but especially *via* the tonsil or intestine.

Diagnosis and Treatment of Perforation of Gastric Ulcer.

Barling (*British Medical Journal*, June 15, 1895) first remarks that the incidence of perforation of gastric ulcers does not in the least degree correspond to their incidence of locality. A large majority of the ulcers occupy the posterior surface and lesser curvature, a few the region of the pylorus, and a still fewer number involve the anterior surface of the stomach; whereas, ulcers on the anterior surface perforate with great frequency, those on the posterior surface rarely in proportion to their actual number, whilst those on the lesser curvature perforate comparatively often. The explanation of this varying tendency is found, firstly, in the fact that ulcers on the posterior surface and, to a lesser extent, those on the lesser curvature, as they advance tend to become adherent to adjacent parts, while those on the anterior surface, because of greater mobility, rarely form adhesions; and, secondly, because the symptoms of ulcers on the anterior wall of the stomach being less marked than those of ulcers situated elsewhere, the subjects of these are less often aware of their presence, and are more apt to be careless regarding the quality and quantity of diet, whereby the ulcer is subject to undue stretching and traumatism which may result in perforation. In considering the diagnosis, the previous history usually points to the stomach as the seat of lesion. Perforation usually takes place when the stomach is full or partly so, when the patient is in a more or less vertica position, and frequently after some particular act or exertion,—stooping, sneezing, or lifting of some heavy weight. The moment of perforation is usually marked by sudden acute abdominal pain, producing at times faintness, or even collapse or death. Occasionally there may be slight vomiting. The abdominal walls retract and the muscles become rigid; respiration is usually thoracic, quick, and shallow; the temperature subnormal; the pulse quick and feeble. The symptoms now ensuing depend upon the position of the ulcer, the degree of distention of the stomach, and the position the patient occupies. The extravasating material may spread widely into the peritoneal cavity, causing intense and rapidly-spreading peritonitis, and death usually in from twelve to seventy-two hours; or it may remain for a time

localized between the stomach and liver, eventually escaping from there into the general peritoneal cavity, causing at first shock, which passes off; and when septic peritonitis ensues from further leakage death occurs, usually in four or five days from the time of the seizure; or, finally, the extravasating material may remain localized under the diaphragm, and produce a subphrenic abscess. In such a case, after the shock passes away, there ensues a period during which the symptoms are so slight as to almost make one doubt the accuracy of the diagnosis. Then follow the general symptoms of pus-formation and the local signs indicating a gas-containing cavity below the diaphragm. Following these may come symptoms of septic invasion of the thorax,—pleurisy, empyema, pneumonia, or lung abscesses. As fully 95 per cent. of all cases left to medical care die, the only treatment that offers any hope of recovery is operation. Of thirty-seven cases operated upon, thirteen recovered, but he does not suppose that one-third of all the cases have been saved, as many unsuccessful ones have probably not been reported. Meet collapse by maintaining horizontal position, external warmth, enemata of warm fluids and stimulants, and morphine hypodermically; nothing by the mouth. If operation be declined, must depend upon recumbency, absolute rectal feeding, and morphine. If operation be determined upon, there must be a sufficient delay to allow of recovery from shock. The wound in the stomach is to be closed by Lembert sutures without excision of the ulcer, and is to be followed by irrigation of the abdominal cavity. If a subphrenic abscess forms, it is to be evacuated by an incision into it as directly as possible.

Dual Brain Action.

Bruce (*Brain*, Part LXIX, 1895) reports a most remarkable case of dual brain action, describing an individual who appeared to have two separate and distinct states of consciousness, and in whom the right and left brain alternately exerted a preponderating influence over the motor functions. The patient was a Welshman, aged 47 years, who had been insane for fifteen years. His early symptoms were those of melancholia; later, he was noisy, destructive, and demented. During an observation of some months it became apparent that either cerebral hemisphere was capable of independent action, more especially with regard to mental processes, the dual action being confirmed by the invariable change from right-handedness to left-handedness, or *vice versâ*, which coincided with what was termed the English and Welsh stages. When in the English stage, right-handed, and presumably using the left cerebral hemisphere, he was the subject of chronic mania. He spoke in English, but understood and would converse in Welsh; was restless, destructive, and thievish; exhibited a fair amount of intelligence; wrote, drew, and related incidents of his past life; was bold and fearless in manner; recognized doctors and attendants. Although he remembered everything which he noticed during previous English stages, his memory was a blank to everything that occurred during any Welsh stage. The circulation was good, appetite increased, bowels regular, and he was fond of bathing. He wrote by preference with the right hand; letters were fairly legible, and he wrote from left to right. If requested, he would write with his left hand, but produced mirror-writing, traversing paper from right to left. Special senses active, regardless of severest weather. When in Welsh stage, left handed, and presumably using his right cerebral hemisphere, he was the subject of dementia. His mental and physical conditions were the reverse of what they were when in the English stage. His speech was almost unintelligible; what could be understood was Welsh. He understood Welsh, and would occasionally answer a question; had no idea of English. Would sit doubled up in a chair for hours; impossible to

estimate his education or memory; was shy and suspicious; did not recognize doctors nor attendants; circulation was weak, extremities livid, legs often edematous; was constipated, voided small quantities of urine at long intervals, disliked bathing. In writing he used left hand, traversing paper from left to right; on persuasion, would use right hand, traversing paper from left to right, but made capitals backwards. Special senses were unimpaired, but he was unable to analyze and appreciate the crude sensations received. The presence of distinct bodily symptoms peculiar to the alternating mental phases was one of the most noticeable features of the case. Occasionally, when passing from the English to the Welsh stage, or the reverse, the patient would pass through an intermediate condition, in which he was ambidextrous, spoke a mixture of Welsh and English, and understood both languages. This stage was often absent or so short as to pass unnoticed, the patient suddenly waking up to new life and activity or becoming suddenly demented. Some circulatory change was believed to be the direct cause of the transition from one stage to the other. A comparison of the mental power of each hemisphere placed the right at a much lower level than the left, and suggested the query, Is this due to the unequal ravages of disease or to the unequal development of education?

Tetanus in Childhood.

Fronz (*Jahrbuch für Kinderheilkunde*, Vol. XL, Parts 2 and 3, 1895), reporting some of the cases, gives a *résumé* of all the cases of tetanus, including tetanus neonatorum, which were treated in St. Ann's Hospital, Vienna, during the past thirty years. In all there were fifty cases, and Fronz, in contradistinction to other observers, who assert the mortality to be between 80 and 90 per cent., being even higher in cases of tetanus neonatorum, claims that in his cases the mortality of all (fifty) cases was 44 per cent.; of tetanus neonatorum alone, 50 per cent. From this study he concludes that the severity and frequency of tetanus in childhood should not be over-estimated. Tetanus neonatorum is much more frequently accompanied by sepsis than is tetanus of adult life; convulsive seizures in early life are much more dangerous than later; dangerous complications, such as pneumonia and diseases of the gastro-intestinal tract, are very apt to ensue; new-born children are less susceptible to the tetanus toxine than are adults. All of these factors are to be considered when in a given case of tetanus in childhood, especially though in tetanus neonatorum, the serum-therapy is thought advisable.

Gangrene of the Leg following Typhoid Fever.

Quervain (*Centralblatt für innere Medicin*, No. 33, 1895), remarking the rarity of the occurrence of gangrene following typhoid fever, notes the cases so far reported, and to them adds another, a personal observation of his own. The patient was a man aged 25 years, previously healthy, who had had an attack of typhoid fever of moderate severity. As defervescence began, he became affected with severe pain in the right leg, to which were added, in a few days, paleness of the foot and lower part of the leg, diminution of sensibility and temperature; no edema. The pain became very intense and the pulse and bodily temperature increased. There were no symptoms of endocarditis. The popliteal space and below became slightly edematous and very painful and tender, so that an abscess was thought of. Later there was absolute loss of motion and sensation, cyanotic discoloration, alternating with paler spots, commencing line of demarcation. This later progressed. There then occurred edema of the left foot and leg, great pain, and tenderness along the great vessels to the groin. The thrombosis of the vein quite evident; palpable. Finally, the right leg was amputated above the knee. Despite exacerbations of

phlebitis of the left leg, a superficial gangrene of a small part of the skin covering the stump, and a bed-sore the patient made a good recovery. The popliteal artery was loosely filled with a red, rather firm thrombus which reached as far as the middle of the leg, filling many branches of the artery. The popliteal vein was filled with a rather tightly adherent, firm thrombus, also extending to smaller branches. The vessel sheath was slightly edematous and embedded in an intermuscular abscess. The abscess consisted of pus corpuscles and blood, degenerated cells, and numerous typhoid bacilli; no staphylococci nor streptococci. Regarding the causation, he considers three possibilities,—

(1) There may have occurred a deep intra- or inter-muscular abscess (or periarteritic or periphlebitic abscess) caused by the typhoid bacillus. Then ensued damage to the vessel walls and arterial and venous thrombi.

(2) There may have occurred a phlebitis caused by the typhoid bacillus; then periphlebitis with abscess, periarteritis, arteritis, and thrombus.

(3) Or there may have occurred a primary arteritis caused by localization of the typhoid bacillus on or rather in the arterial wall, then arterial thrombus, periphlebitis, phlebitis, abscess.

He is disposed to accept the last as the proper explanation of the process, and thinks he should not speak in this case of a marantic or toxic thrombus, but of a thrombus due to metastasis of the typhoid bacillus.

Visible Contractile Tumor of the Pylorus following Ulcer of the Stomach.

Osler (*Montreal Medical Journal*, August, 1895) reports the case of a male, aged 28 years, when he first came under observation in 1893, who, with a previous history of dyspepsia, gastralgic attacks, the vomiting of large quantities of blood, and persistent hyperacidity of the gastric juice, symptoms which pointed unmistakably to gastric ulcer, later developed in the epigastric region a tumor mass, which was the feature of special comment, particularly because of its phantom character. It would lift the skin in the middle line, between the navel and ensiform cartilage, appearing as a definite tumor transversely placed and was then to the touch firm and hard. After lasting for from half a minute to a minute, it would gradually disappear with sometimes an audible sizzling sound. On palpitation the tumor mass became very much softer, but even when relaxed it was evident as a somewhat sausage-shaped, tubular body, which could be rolled beneath the fingers. Visible peristalsis, absent at first, later became evident. The only rational explanation seemed to be that, in consequence of the ulcer, there was much cicatricial puckering with narrowing of the pyloric orifice, and consequent hypertrophy of the pyloric zone. The phantom character of the tumor could be alone explained on the supposition of an alternate contraction and relaxation of the hypertrophied muscular tissues about the pylorus; and with this the evidence obtained on palpitation was fully in accord, since, when the tumor was visible beneath the skin, it was excessively firm and hard. Relaxation took place under the hand with a marked change in the consistency. The autopsy revealed a much contracted, thickened pylorus, the wall in one place being fourteen millimetres thick. At a place about three millimetres from the duodenal orifice there was an area fifteen by ten millimetres which looked like the floor of a healing ulcer. The entire muscular coat of the stomach was greatly hypertrophied. Microscopical examination revealed nowhere any carcinoma, the entire tissue being enormously hypertrophied muscularis.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

G. G. DAVIS, M.D., M.R.C.S., AND ELLWOOD R. KIRBY, M.D.

Lumbar Choledochotomy.

Tuffier (*Gazette de Hôpitaux*, May, 1895) states that the many difficulties and dangers which are met with in the performance of operations upon the biliary passages, had induced him to suggest a new method of operation which he thought was applicable to cases in which the common duct was the seat of lesion. The method was suggested to him by an experience which he had when exploring the renal region through a lumbar incision. After the right kidney had been fixed to the ribs, the common bile-duct and gall-bladder (both of which were filled with calculi) were easily felt as a tumor, immediately in front of the kidney. This induced him to carry out a series of researches upon the dead body, from which he drew the following conclusions:

The common bile-duct, the second portion of the duodenum, and the posterior surface of the pancreas lie outside the peritoneum, and on this account the common bile-duct can be exposed by the following surgical procedure: The patient is placed on his left side, a pillow having been placed underneath the loin. An incision is made parallel to the last rib and one finger's breadth below its border, commencing at the angle and passing inward for about fifteen centimetres, and is deepened until the lower extremity of the right kidney is defined; this is pushed upward with a broad retractor.

The inferior vena cava is raised and pushed inward and the duodenum with the head of the pancreas drawn outward. By means of the finger a cord can now be felt at the bottom of the wound, which passes upward, and consists of the common bile-duct and its accompanying vessels. By careful dissection that portion of the common duct which lies in the pancreas and behind the duodenum can be isolated and examined. The author has performed this operation in ten bodies, and in no case failed to find the duct. This method is also suggested as being a possible way of evacuating purulent foci situated in the pancreas. During this operation considerable care must be exercised lest the operator wound the vena cava, the pancreas, the portal vein, and the hepatic artery.

Intracranial Resection of the Fifth Nerve.

Krause (*Münchner medicinische Wochenschrift*, No. 20, 1895) claims that the removal of the ganglion is preferable to the excision of the three parts of the nerve, and that it is not more difficult or dangerous, whilst it is more efficacious. He says Rose's method does not permit of sufficient room for operative manipulation; that it makes the arrest of hemorrhage difficult, and that the Eustachian tube may be ruptured and lead to an infectious meningitis. In performing the operation, Krause advises that a portion of the squamous portion of the temporal bone should be removed, and the cranial cavity opened. Next the middle meningeal is ligated and the dura separated from the bone. In this manner the ganglion is exposed and re-

moved. It may be adherent to the meninges, and if great care is not taken they may be injured or the cavernous sinus opened. If the latter accident happen, hemorrhage must be arrested by packing with gauze, and further operation desisted from.

Iodoform Injections in Joint-Disease.

Ferraro (*Il Poloclinico*, June, 1895) reports the case of a man, aged 37 years, who, after a long walk, noticed pain in the right knee. The joint was uniformly enlarged, red, tender, and contained fluid. The joint was incised and a considerable quantity of flaky pus let out. Two or three weeks after this operation, a small abscess formed in the upper third of the tibia; this was scraped. A similar purulent focus also appeared in the shaft of the tibia. The joint became much worse after the second abscess developed. The author then tried endo-articular injections of iodoform emulsion in glycerin one to ten, at intervals of from twenty to twenty-five days. After each injection there was fever of a maximum grade on the second or third day. The tubercle bacillus was found in the joint secretion. Slight improvement followed the injections, which were used five times; the patient not being satisfied resection of the joint was done. It was then seen that the cavity was full of a mass of adipo-muco-fibrous connective tissue, the caseous substance being almost gone, the osteitic foci cured or in process of cure, and the tuberculous nodules undergoing fibrous change. No bacilli were now to be found. The iodoform probably acts by exciting a reactive inflammatory process, with the formation of new connective tissue.

The Treatment of Cystitis.

Trendenberg (*Wiener klinische Wochenschrift*, June, 1895) has tried cantharidin in fifty-six cases of cystitis. The formula used was

℞	Cantharidin (Merck's),	0.001
	Alcohol,	1.0
	Aquæ,	100.0

A teaspoonful of this was given three or four times a day, larger doses did not succeed if this failed. In five cases there was no improvement, and of these only one was afterwards cured by local treatment, the other four even resisted all forms of operative treatment.

In nineteen cases the action was slight or even doubtful, the strangury alone being improved, or the urine clearing without the cure being complete. In one of these cases the cystitis was due to perforating silk sutures after laparotomy, and the strangury alone was relieved; in another case the bladder had diverticula; some remained, however, in which the drug failed without any apparent cause, for example, one case of gonorrheal cystitis afterwards cured by sandal-wood.

The remaining thirty-two cases were completely cured, often very quickly.

The author states in conclusion that cantharidin is only approached by sandal-wood oil in its action upon cystitis, and that the latter is preferable if urethritis is present.

Its advantages are its cheapness, tastelessness, and almost complete freedom from unpleasant symptoms, at least, in the above given dose. Frequent erections were only noted in one case, formication once, and an eruption once. Disordered digestion or albuminuria never occurred.

The Operative Treatment of Congenital Dislocation of the Hip.

Hoffa (*Berliner Klinik*, June, 1895) reports the results of his operation for congenital dislocation of the hip, which consists in exposing the joint, deepening the cotyloid cavity, and placing the head of the femur in its normal position. He describes also the different modifications in the technical details of his procedure he has adopted from time to time. His paper deals with the results of 112 operations performed on eighty-two patients, thirty of whom were affected with bilateral, and the remaining fifty-two with unilateral dislocations. In three of the cases death occurred as a direct result of the operative treatment, having been due in two cases to prolonged anesthesia, with hemorrhage and shock, and in a third instance to iodoform-poisoning. These disasters led the author in subsequent cases to perform the operation more rapidly in order to avoid the shock, and refrain as far as possible from division of the muscles, and substitute simple sterilized gauze for the iodoform dressings. In nine cases the operation was followed by anchylosis of the affected hip. This unfortunate result is attributed in eight of the cases to suppuration in the wound.

In the remaining cases of recovery, in which the treatment resulted in the establishing of a freely movable joint, there was no subsequent tendency to stiffness of the hip, either from adhesions or muscular contractions. In most cases the mobility of the limb increased steadily after the patients were discharged from the hospital. A return of the luxation was noted in eleven cases; in three the bone was displaced backward, and in eight forward. In the cases of the backward dislocations the cases had been removed from the author's supervision before the completion of the treatment. The forward displacements the author attributes to insufficient deepening of the cotyloid cavity, and occurred in early cases. In cases of unilateral dislocations the operation is followed by a decided lengthening of the affected limb in consequence of the restoration of the head of the femur to its normal level. The amount of persistent shortening, due to deformity of the neck of the displaced bone, is not very great, and may be obviated by obliquity of the pelvis, and by the use of a high shoe in the affected side.

In the case of the bilateral dislocation the author claims that his operation relieves the lordosis, in the reduction to a minimum the waddling gait, in the restoration of the normal direction of the limbs, and increased abduction.

The author insists on the necessity of preserving the continuity of the muscles of the joint and of restoring their healthy condition and contractile vigor. During the after-treatment electricity and massage should be employed.

Recent Advances in Cerebral Surgery.

Von Bergmann (*Centralblatt für Chirurgie*, No. 27, 1895), at the German Surgical Congress, brought to notice certain advances that have recently been made in the department of cerebral surgery.

In cases of tumor of the brain, surgery has, of late, done very little beyond facilitating a correct diagnosis, and rendering operative interference less dangerous. In Jacksonian epilepsy surgical treatment is usually followed by a relapse, and a certain cure can only be effected in those cases in which the convulsions are due to the compression of a circumscribed cortical motor centre, as by tumor or cyst. On the other hand, decided progress has been made in the operative treatment of different forms of intracranial suppuration of otitic origin, such as cerebral abscess, epidural suppuration, infective thrombosis of the lateral sinus and leptomeningitis. The most dangerous forms of chronic aural suppuration, which is usually excited by

a collection of cholestomata in the interior of the ear, are indicated by intercurrent acute and subacute attacks with fetid discharge, and by the presence of polypoid granulations in the tympanic cavity and the auditory meatus.

The extension of the inflammation through the thin and carious ligamentum tympani sets up a pachymeningitis, which in turn gives rise to an extradural or epitympanic abscess, or to intradural or cerebral abscess. The cerebral abscess, when small, and in an early stage of development, is situated on the surface of the brain, but as it enlarges it sinks into the substance of the affected lobe. As the diagnosis between a superficial and epitympanic abscess on the one hand, and a cerebral abscess on the other, is attended with much difficulty, the author holds that in performing an operation it is necessary to expose both the extradural abscess and the part of the temporal bone most likely to be involved in the extension of the suppurated process. An operation is described by which the upper and anterior surface of the petrosal bone through a quadrangular opening made in the squamous portion of the temporal bone, just above the line of the zygoma, and between a line in front drawn directly upward to the sagittal suture from the tragus and a parallel line behind carried upward from the posterior border of the mastoid process. By this wound the mastoid antrum and cells may be opened when necessary and the sigmoid fossa reached. In conclusion, the author alludes to the successful surgical treatment of infective thrombosis of the lateral sinus.

Exposure and incision of the sinus with ligature of the internal jugular vein proved successful in six out of thirteen cases treated by Jansen, of Berlin. These cases added to those of Macewen and other surgeons showed that the operative treatment resulted in recovery in twenty-seven out of forty-five patients. Thrombosis of the lateral sinus is often associated with an extradural abscess on the roof of the tympanic cavity, and in most cases of cerebellar abscess forms a communication between this collection of pus and the suppuration in the middle ear. In exposing the outer surface of the mastoid process and the bone lying behind this, search should be made for the mastoid emissary vein. Not only is the orifice a good guide to the sinus, but, in addition, the state of the vessel may aid in the diagnosis. If it contains pus, suppuration in and about the lateral sinus is indicated, if it be blocked by a thrombus, this will be a sure sign of thrombosis extending into the cavernous sinus. The author attributing much of the recent progress in cerebral surgery to improvements in technical details and in the instruments, makes use of an electric circular saw with which he divides the outer table, while the inner table is divided by the careful use of a chisel.

Hemiatrophy of the Tongue in Suboccipital Caries.

Vulpius (*Beiträge zur klinische Chirurgie*, Band xiv) reports two cases. The first was that of a man, aged 32 years, supposed to have caries of the atlas. The left half of the tongue was atrophied, but when protruded turned to the right. A mastoid abscess on the left side was opened, and six weeks afterwards the patient died of hemorrhage from the left ear. At the post mortem the hemorrhage was found to have come from the jugular vein. Ulceration of the trigeminal, facial, and auditory nerves had caused the masseteric and facial paralysis and deafness on the left side; a fibro-caseous pachymeningitis had caused compression of the accessories, pneumogastric, glosso-pharyngeal, and hypoglossal nerves. The hypoglossal compression had brought about the atrophy and paralysis of the left half of the tongue.

Herth claims that in cases of facial paralysis the tongue always deviated to the sound side; it is thus that the author explains the apparent anatomy in this case.

The second case was that of a girl, aged 18 years, with tubercular disease of the atlas and axis, and atrophy of the right half of the tongue, owing, doubtless, to implication of the right hypoglossal nerve. By rest and apparatus for supporting and fixing the head great improvement in the symptoms followed, and the lingual atrophy could be scarcely noticed any longer.

Other causes of lingual hemiatrophy are syringomyelia, syphilis, apoplexy, tabes, and general paralysis; it has occurred after mumps, scarlet fever, saturnism, and by compression of the hypoglossal nerves from cancer, tremors of the lymphatic glands, hydated cysts, and carotid aneurisms. Lastly, there are traumatic cases, and cases in which no cause could be found; in one case reported the condition was congenital.

The Operative Treatment of Spinal Caries.

Calot (*Revue d'Orthopédie*, July, 1895) holds that in the present state of science it is unjustifiable to operate in cases of paralysis, due to Pott's disease of the spine, as most of these cases will recover, if treated by prolonged rest.

Of twenty cases treated by the author during the last four years by rest and immobilization, nineteen are either quite cured or on their way to complete cure, one only having died in consequence of the rupture of a large psoas abscess into the bladder.

Operative treatment is contra-indicated in Pott's disease by the seat and the extent of the lesions, by the nature of the tuberculous process, and by all the risk attending surgical interference. It has been stated that in 50 per cent. of the recorded cases thus treated, death has been due directly to the operation, and there is reason to believe that the mortality really amounts to between 60 and 80 per cent.

The author concludes that the operative treatment which is so fatal or useless in a large majority of cases does not afford in the few successful cases better results than those obtained by strictly orthopedic treatment.

Castration for Prostatic Hypertrophy.

Kümmell (*Berliner Klinik*, August, 1895), in a lecture upon the operative treatment of enlarged prostate, reports eight cases of this affection treated by double castration. The operation was followed by considerable relief in these cases, but one patient, aged 77 years, died of exhaustion four weeks after the operation. In a review of his own cases, and those published by other surgeons, he states that in a large majority of instances of senile enlargement of the prostate, White's operation is certainly followed by a more or less rapid shrinking of the prostatic tissue. This result in most cases enables the patient to dispense with the use of the catheter, and to discharge urine spontaneously. The bladder symptoms are much relieved, and the general condition greatly improved.

In the selection of suitable cases, attention should be paid to the condition of the muscular structure of the bladder.

If the detrusor muscle be paralyzed to such an extent that the bladder cannot be completely emptied, even by the use of a catheter, it would be useless to expect the restoration of the normal function as a result of removal of the obstruction to the flow of urine.

In two of the cases here recorded good results were obtained in spite of the great weakness of the detrusor. In many cases the diminished size of the prostate after double castration permits of a more ready introduction of the catheter, and

thus wards off the dangers of retention. According to the author the operation is only to be recommended in those patients whose sufferings have attained a high degree, and can no longer be relieved by mere symptomatic treatment. The author met with no objection to the operation from any of his patients, all of whom were well satisfied with the results.

The author says the observations as to the influence of unilateral castration in the growth of the prostate are very contradictory, and further information is needed before any definite conclusion can be reached on this question.

Nephropexy.

Vulliet (*Revue Médical*, June, 1895) describes an operation original with himself for fixing a floating kidney. The usual method of fixation by suture is unsatisfactory, owing to the friability of the kidney tissue. The operation reported substitutes a living tendon, which firmly fixes the kidney in position. The experiment was first tried upon a large dog, the result being successful.

A patient suffering from an extreme displacement, and unable to walk and gain his living, was chosen for the operation. An ordinary extraperitoneal incision was made to reach the kidney. A second incision, eight centimetres in length and having its centre opposite to the first lumbar spine, was made parallel with and two centimetres external to the dorsal spines. The ligaments and dorsal aponeurosis were incised and the tendinous slips of the dorsalis longus found. The tendon, which is inserted into the first lumbar, was chosen, this being about the size of a stout boot-lace, and usually from twenty-two to twenty-four centimetres in length. This was raised by two fingers inserted beneath, and by traction stripped up to its insertion near the shoulder, shreds of muscular tissue being left attached to its free end. A strong stylet was then passed through the muscles between the twelfth dorsal and first lumbar vertebræ into the abdominal cavity; the tendon threaded on this and drawn through.

The kidney was then drawn out through the first incision and a stylet passed from below up beneath the capsule along the posterior border. The tendon was threaded through this and drawn downward, reappearing at the lower part, and leaving a free end of four or five centimetres in length. This was passed outward through the muscles of the abdominal walls and fixed with metal sutures in the wound, the tendon having described in its course the figure 8.

The operation was entirely extraperitoneal, and there was scarcely any hemorrhage, no rise of temperature, and but little pain. The wounds healed by first intention in eight days, and the patient was shortly afterwards discharged and completely cured.

Division of the Vas Deferens for Prostatic Hypertrophy.

Isnardi (*Centralblatt für Chirurgie*, No. 28, 1895) reports the case of an enlarged prostate, with serious and intractable urinary trouble, in a patient aged 71 years, which was successfully treated by double ligature and division of the vas on both sides. The incontinence ceased after the operation, the urine became quite clear, and the enlarged prostate diminished so much in size that it could scarcely be felt through the rectum. The epididymis became smaller and harder on each side after the operation, and the volume of each testicle was reduced by about one-half, the condition of these parts resembling that consequent on chronic gonorrheal epididymitis.

THERAPEUTICS

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D., AND ARTHUR A. STEVENS, M.D.

Treatment of Diabetes.

Robin (*Bulletin de l'Académie de Médecin*, No. 23, 1895) employs what he terms an "alternating treatment" in diabetes. He believes that in this disease there is an increased activity of the chemical changes of general nutrition, and of the hepatic cells in particular, which is the result of increased activity of the nervous system. Hence he recommends drugs which diminish the activity of these general changes by acting primarily on the nervous system. The treatment is divided into three stages: (1) For four days a powder, containing about fifteen grains of antipyrin and eight grains of sodium bicarbonate, is given twice a day. In addition cod-liver oil is taken twice a day, and Seignette salt as a morning purgative. (2) At the end of four or five days the antipyrin is discontinued, sulphate of quinine prescribed,—six grains in a cachet at the mid-day meal. This is taken for six days, then discontinued for four days, and afterwards taken again for six days. Before the morning and evening meals a cachet is recommended containing arsenate of soda, carbonate of lithium, and codeia. (3) After fifteen days these drugs are discontinued, and the author prescribes, for ten days, a pill containing opium, belladonna, and valerian. The cod-liver oil is discontinued and the patient is allowed to drink a weak solution of bicarbonate of soda (1 in 125). In the case of nervous women, or if there should be intolerance of the opium and belladonna pills, fifteen grains of potassium bromide are given two or three times a day for eight days. In addition to the medical treatment the diet is regulated. On account of the loss of inorganic salts in diabetes the author recommends the food to be well salted; to supply potassium salts he advises green vegetables, especially cabbage and endive, and also a weak solution of potassium tartrate to dilute the wine taken at meals; and to counteract the loss of phosphates of magnesium and calcium he prescribes glycero-phosphates of lime and magnesia. He also recommends bouillon on account of the inorganic salts which it contains. If sugar is still present in the urine after the third stage of the medical treatment above mentioned the course is recommenced. After a second course, whether sugar has disappeared or not, the drugs are discontinued for one month. Robin has treated by this alternating method 100 cases of diabetes, in each of which the daily quantity of sugar excreted was 100 grammes or more. In twenty-four of these recovery has occurred; in twenty-five recovery is still doubtful; in thirty-three there has been considerable and permanent improvement; in eighteen the results have been negative.

The Direct Influence of Sodium Bicarbonate on the Gastric Secretion.

N. Reichmann (*Therapeutische Monatsheft*, March, 1894, and *British Medical Journal*, July 6, 1895), in view of the uncertain teaching as to the effects produced on the gastric mucous membrane by alkalies, investigated the matter methodically, choosing sodium bicarbonate on account of the extent to which it is generally used. The experiments were performed on human beings, the following five methods being employed: Patients drank before breakfast, during successive

mornings, alternately 200 cubic centimetres of distilled water and 200 cubic centimetres of a bicarbonate solution. After fifteen to thirty minutes the gastric contents were aspirated, but neither small nor large doses appeared to influence the quantity of fluid secreted. The same experiment was tried in subjects who, however, were allowed shortly after drinking to eat a breakfast. Here again the result of aspiration was negative. In the next place the alkali was administered every morning during several weeks, but no appreciable effect was produced. On the other hand, when taken after food, the acidity of the gastric contents was diminished in proportion to the amount of bicarbonate taken. Again, this investigation, when extended over several weeks, produced no effect on the gastric secretion. In conclusion, the author states that the examinations numbered 103; that the drug will act as an alkali even to a considerable degree, but that it in no way influences the secretory power of the stomach. Nevertheless, he admits the value of a drug, which is capable of lessening acidity, and he states that the long-continued use of weak alkalies will no doubt produce a tonic effect on a weak gastric mucous membrane.

Treatment of Chlorosis.

Hayem (*Journal des Practiciens*, No. 17, 1895) lays great stress on the value of rest in the treatment of chlorosis. In severe cases he advises absolute rest in bed. The rest not only lessens the destruction of red blood-corpuscles, but also checks a waste of iron, quiets the nervous system, improves digestion, relieves the neurasthenia, and in abolishing the corset removes a frequent cause of dyspepsia. He believes that cures are less readily effected at home than in hospitals on account of the rest which patients enjoy who are treated in the latter institutions. It is necessary to relieve the dyspepsia before prescribing iron. At first the diet should consist of milk and rare meat, later eggs, fish, green vegetables, and stewed fruits may be added. Bread is permitted only after the lapse of four or five weeks. In the way of drugs the author prescribes either the carbonate or the oxalate of iron, in pills at the beginning of each meal, and hydrochloric acid a half hour afterwards.

The Use of Diphtheria Antitoxin for Immunization.

Biggs (*British Medical Journal*, August 31, 1895) states that remarkable results have attended the use in New York of diphtheria antitoxin for immunizing purposes. The conditions under which it has been employed have been peculiarly favorable for demonstrating its exact value. From May, 1892, to February 18, 1894, no cases of diphtheria occurred in the New York Infant Asylum, which ordinarily has about 400 inmates. From February 18 to September 1, 1894, there were 22 cases of diphtheria and 15 deaths. In September there were 16 cases, and from this time to February 10—108 days—107 cases of diphtheria occurred. These were very evenly distributed over this time, about 30 cases developing in each month. In the latter part of October systematic bacteriological examinations of the throats of the healthy children showed that diphtheria bacilli were present in so large a number that in order to isolate these nearly one-half the inmates were quarantined. All efforts directed to checking the progress of the epidemic were unattended with success up to the time that antitoxin was employed for immunization. By the use of antitoxin it has been possible to completely stamp out diphtheria in four great institutions for children in which it was prevailing in epidemic form. In no instance have there been, so far as can be determined, any serious results from the administration of the remedy for this purpose. The duration of immunity is apparently not more than thirty days in many cases.

The Action of Normal and Antidiphtheritic Serum on the Healthy Organism.

Arlong (*Lyon Médical*, June 2, 1895) experimented on the action of the normal serum of a horse and of antidiphtheritic serum by making injections in healthy animals.

First Series.—Three batches of eight healthy guinea-pigs each. The first batch was for control purposes. Subcutaneous injections of half a cubic centimetre of normal serum were given daily to the second and third batches, December 13 to January 15; from then to February 22, 0.75 cubic centimetre daily. On February 22 the first batch had increased 34.28 per cent. of their initial weight, the second batch 15.82 per cent., and the third 19.07 per cent. This shows that normal serum had a prejudicial effect on nutrition.

Second Series.—Very young guinea-pigs were used with a view to their growing. The first batch consisted of two "control animals." Every day the second batch of two animals was injected with 0.75 cubic centimetre of antidiphtheritic serum,—enough to render immune an animal more than fifty times their weight. After twelve days there was a slight difference in weight between the two batches in favor of the control animals, and during the whole time the experiment lasted (forty-five days) the first batch increased 50 per cent., the second only 44.5 per cent. Thus there was a sensible retardation of development in the animals which were injected with the antidiphtheritic serum.

The Blood Alterations of Ether Anesthesia.

J. Chalmers Da Costa concludes a paper on this subject in the *Medical News* of March 2, 1895, as follows:

(1) Etherization produces a marked diminution in the hemoglobin of the blood.

(2) The red corpuscles and the hemoglobin are especially affected in blood previously diseased,—in such conditions, for instance, as anemia.

(3) Irregular reports are due to faulty observation, to the presence of altered hemoglobin in the blood, to the faulty aberration as to color of a Fleischl instrument, or to taking the blood before anesthesia is completed.

(4) The white corpuscles show irregular changes which are not characteristic, and exhibit variations not more pronounced than would be found in the same number of samples of normal blood on different examinations.

(5) Age does not apparently influence the results.

(6) Ether pneumonia may be possibly due, in some instances at least, to the action of intense cold on the lungs, produced by the action of ether vapor.

(7) Edema of the lungs may arise from contraction of the pulmonary capillaries, thus producing a loss of *vis a tergo* and damming up of blood in the veins. Furthermore, the same condition may produce sudden paralysis of the heart.

(8) The often-quoted observation as to the effect upon the hemoglobin of shock and hemorrhage requires enlarged repetition upon human beings before the statements can be accepted that hemorrhage causes a great fall in the amount of hemoglobin, but that shock does not affect it.

(9) The chilling of the blood-stream may be responsible for the nephritis that occasionally follows etherization.

(10) Prolonged anesthesia profoundly deteriorates the blood and strongly militates against recovery; hence rapidity of operation is most desirable.

The Treatment of Diphtheria with the Antitoxin.

At a recent meeting of the Berlin Society for Internal Medicine, Eulenburg (*Deutsche medicinische Wochenschrift*, 1895, No. 29, p. 472) made a preliminary report of the results of a collective investigation as to the results of the treatment of diphtheria with the antitoxin. Of 10,240 cases, 5790 were treated with the antitoxin, with a mortality of 9½ per cent., while 4450 were treated without the antitoxin, with a mortality of 14.7 per cent.—*Medical News.*

Assafetida in the Treatment of Abortion.

Warman (*Therapeutische Monatsheft*, January, 1895) highly commends the use of assafetida in the treatment of abortion. He usually prescribes it in pills, each containing one and a half grains, but in some instances he obtained better results from an enema of the tincture properly diluted. He began with two pills a day, gradually increasing the dose to ten a day. The remedy promptly checks the hemorrhage, although severe, and, moreover, acts as a sedative permitting a gradual separation of the ovule without uterine contractions. In the hands of the writer assafetida has proved far more satisfactory than morphine or the other remedies generally relied upon in the treatment of abortion.

OBSTETRICS.

UNDER THE CHARGE OF

BARTON COOKE HIRST, M.D.,

ASSISTED BY

RICHARD C. NORRIS, M.D., AND FRANK W. TALLEY, M.D.

Macerated Fetus; Rigidity of Os; Digital Dilatation.

Charles (*Journal d'Accouchements*, Liége, July 14, 1895) records the case of a 19-year-old primipara who became pregnant after her period in the middle of September, 1894. She felt the movements of the fetus at the fourth month. These ceased after the seventh month and milk was then freely secreted from the breasts, as frequently happens when the child dies. In the middle of April, 1895, labor set in and was very tedious. The uterus had not increased in size for six weeks, but the patient's health was excellent. Charles found that the uterus contracted firmly, but the neck was effaced. The os, however, was quite closed and its lips glued together. On the following morning there was no change. The patient was chloroformed and the forefinger was with difficulty introduced into the os. The operator's hand became so tired that it had to be withdrawn. An assistant succeeded in introducing two fingers. Then Charles resumed the process and passed three and at length four fingers. Labor was then ended with ease. The membranes were ruptured and the macerated fetus extracted with the fingers. It was under ten inches long, and, as the cranium was flaccid, dragging on the hair proved sufficient to effect extraction. The placenta came away spontaneously ten minutes later. The uterus was washed with a solution of sublimate, and the patient made a good recovery.

Puerperal Eclampsia.

Dr. Harrison (*American Journal of Obstetrics and Diseases of Women and Children*, September, 1895) reports a case of puerperal eclampsia very happily treated by the administration of veratrum viride with morphine and atropine (hypodermatically) conjoined with the injection of sterilized glycerin into the uterus.

The patient was a robust primipara who began to have a trace of albumin about seven weeks before her estimated time for delivery. Six weeks later she was seized early in the morning with severe cramps in the abdominal muscles and complained of violent movements of the fetus. In the evening of the same day she was seized with convulsions. The cervix and os uteri showed that labor was not imminent. In consultation with Dr. King, Harrison now administered ten drops of the fluid extract of veratrum viride, one-ninetieth grain of atropine, and one-third grain of morphine hypodermatically. The bladder and rectum had previously been evacuated and diaphoresis solicited by hot-water bottles and blankets. In a few minutes after the injection the pulse fell to 60 and the convulsions ceased. She was then purged with calomel, jalap, and colocynth.

Ether was next administered and one-half ounce of sterilized glycerin was injected high up in the uterus with due precautions to avoid rupture of the membranes. The catheter was left *in situ* and the vagina tamponned with cotton soaked in glycerin. True labor pains occurred the next morning and delivery was effected in the same afternoon. The patient made a good recovery.

A Case of Pygopagus.

Dr. S. Tynberg presented photographs of joined twins at the meeting of the New York Obstetrical Society, May 7, 1895 (*American Journal of Obstetrics and Diseases of Women and Children*, September, 1895). The mother was seen in the last pains of labor. The head was found low in the perineum. After a half hour the head was delivered and, upon traction, the body was extracted as far as the middle of the sternum. The vagina was then entered and the feet delivered with the remainder of the body. After the child was born, Tynberg found that it could not be taken from the mother. On inserting his hand in the vagina two feet were found presenting. Traction was applied to the feet and the second child was delivered. Then, first, did Tynberg realize that it was a monstrosity. The placenta was about normal size.

The cord (single at attachment) was implanted at the edge of the placenta, bifurcating at about one inch from the attachment.

The children were females with latero-posterior bond of union, extending from the lumbo-sacral articulation to the top of the coccyx, the right sacro-iliac synchondrosis of the one child being joined to the left sacro-iliac synchondrosis of the other. The coccyges fuse, and there may be a fusion of the spine at the termination of the coccyx. Lying naturally, their points of vision would form at the intersection an angle of about 145 degrees. The combined weight was a little over nine and a half pounds.

The genitals are displaced backwards, fusing at the point where the rectum should be. Each child has its separate generative organs and can urinate independently of the other. There is but one anus and rectum, though the rectum divides a short distance above. It is situated between the right buttock of one child and the left of the other, apparently at the side of each child if viewed individually, at the point corresponding to the intersection of two imaginary lines, one

drawn through the median line of the right thigh of one child and the other through the corresponding part of the left thigh of the other. They apparently defecate simultaneously, though Tynberg is of the opinion that this seems thus only because of the existence of but one anus.

The bond of union appears to be only ligamentous, no pulsation being found. The pulses are not synchronous. They neither sleep, cry, nor feed at the same time. The band is one and three-eighths inches in width at junction and about five and a half inches in circumference. Sulcus in front is one and a half inches in depth; behind almost *nil.*

One child was at birth, and still is, smaller. They are both thriving.

Psychoses of Lactation.

Toulouse (*British Medical Journal*, February, 1894), in a contribution on puerperal psychoses, treats of those which are associated with sucking. In rare cases they follow quickly on labor, but then they are hard to distinguish from simple puerperal psychoses. The majority occur after several months of sucking in poor and weakly women. A third form follows weaning. Slight mental disturbance may accompany abscess of the breast, but it is then due most probably to sepsis. Mental disturbance during lactation may begin in the form of slight delirium following mental shock or simply change of diet. As a rule, however, physical symptoms appear first. The patient becomes thin and pale, and palpitations, indigestion, and insomnia set in. In twenty-five cases noted by Marcé, there was melancholia in eleven, mania in eleven, and partial delirium in three. Prognosis is favorable, twenty recoveries and only two deaths having been noted by the above-named writer. As in puerperal mania, auto-infection probably accounts for the phenomena of mental disturbance during lactation.

The Treatment of Asphyxia Neonatorum.

Prochownick (*Centralblatt für Gynäkologie*, 1894, No. 10) describes a new mode of treatment of asphyxia neonatorum which he proposes as a substitute for Schultze's method. It consists in suspending the child by the feet, the head being lightly supported. If no assistant be available to hold the child's feet, the operator grasps the ankles between the fingers of his left hand. With the right he grasps the chest, the thumbs being in front, and makes six to eight regular compressions; at first expiration. The nose and mouth are freed from any mucus, which allows air to enter with the inspiratory effort. It may be necessary to douch the suspended child with warm water to assist the respiratory efforts.

Physometra or Tympanites Uteri.

Hermes (*Der Frauenarzt*, April, 1895) observed this condition in a primipara, aged 37 years, who was syphilitic. The child had evidently died some time before labor, which lasted over five days and was mismanaged. The child's thigh was broken in an attempt to deliver with a blunt hook. The practitioner sent the patient into hospital. She was in a sinking condition, the abdomen greatly distended. The perineum was torn. The pelvis was slightly contracted in all its diameters. On passing the finger into the os a great quantity of fetid gas escaped. The child, very large and in an advanced state of decomposition, was extracted. The placenta, quite putrid, had to be removed manually. The uterus contracted badly, and it was

carefully washed out with a solution of carbolic acid at 122° F. There was no severe flooding. The patient died about one hour after delivery. There were no air emboli, supposed to be the principal cause of death in tympanites uteri. There was perimetritis. Under the endocardium, in the left ventricle, were abundant ecchymoses; the pericardium contained a considerable amount of serum. The fetid air which issued from the uterus clearly came from the dead fetus. The frequent attempts to deliver, badly followed up, admitted air and germs from without. In other cases it has been found that when the fetus had died quite recently fetid gas rapidly collects if air be admitted into the uterus.

The Later Evils following Retention of Placental Relics.

Hartmann and Toupet (*Annales de Gynécologie et d'Obstétrique*, April, 1895) have exhaustively studied the changes which non-septic fragments of placenta may undergo when left attached to the uterine wall. These changes are: (*a*) simple sclerosis of the placental tissue; (*b*) benign deciduoma; (*c*) hydatiform mole; and (*d*) malignant deciduoma. In all, chorionic villi are to be detected by the aid of the microscope. By benign or innocent deciduoma is understood the true placental polypus and more sessile growths, in which there is distinct evolution going on in the chorionic villi, and no sclerosis of the connective tissue. The growth does not, however, recur after thorough removal. The authors relate a case where, as usual, the prominent symptom was frequent metrorrhagia. Legars and Lévi describe a very distinct case of placental polypus with the same symptoms. The malignant deciduoma which Hartmann and Toupet term "chorion-cell sarcoma," and the hydatiform moles are, in their opinion, related. In the latter, so long and so well known to the obstetrician, just as in the former, which appears to be a disease but recently recognized, the growth tends to invade and even perforate the uterine wall. In these graver as in the less serious changes in retained placental tissue, uterine hemorrhages are always an early and prominent symptom.

Fatal Vomiting of Pregnancy.

Davis (*Transactions of the American Gynecological Society*, Vol. xix, 1894) related three cases of fatal hyperemesis gravidarum. In two there was anteflexion with impaction of the pregnant uterus. All suffered from substernal pain. In one, where a necropsy was performed, extensive acute degenerative changes were found in the viscera. In Davis's opinion death was due chiefly to pernicious anemia. The substernal distress of which these patients complained may be considered as a reflex of the uterus in a pathological condition. Sudden and radical improvement does sometimes occur in cases of uncontrollable vomiting of pregnancy, but when pernicious anemia is once established, delay in dilating and emptying the pregnant organ is dangerous at any stage of the pregnancy, and even when the uterus is found impacted, raising and sustaining it will not be sufficient, as two of the recorded cases clearly proved.

Intractable Galactorrhea.

Van Tussenbroek (*Répertoire universal d'Obstétrique et de Gynécologie*, February 25, 1895) describes an unusually bad case of galactorrhea following an abortion at the fifth month in a primipara. Emaciation set in, and, as no therapeutic measures were of any avail, the mammæ were amputated. Microscopic examination did not explain more than might be expected, the glandular tissue being in a very active condition.

Abortion in a Bifid Uterus.

Goulliqod (*Universal Medical Journal*, August, 1895) reported the case of a woman whom he was called upon to curette for the supposed incomplete delivery after an abortion a short time previously. The ovum had been delivered digitally, and several intra-uterine injections were subsequently given on account of the fetid character of the lochia, although there was no fever. Eight days after abortion pain developed first in the right and then in the left side of the abdomen, accompanied by a swelling which was at first supposed to be a tubal dilatation. Later it in no way resembled this condition, but a movable tumor with its largest axis vertical. Examination by the vagina showed a small septum in the neck, and further investigation showed that the right half of the neck was soft and permeable as far as the internal orifice, while the left half was hard and showed the characteristics of the nulliparous cervix. The idea of a double uterus naturally suggested to Goulliqod a double pregnancy with abortion on the right side and threatened abortion on the left. Hoping to prevent the latter, opium was administered, but several hours later a fetus of three-and-a-half months was expelled. The following day the condition of the cervix was modified, and it was difficult to distinguish the intra-cervical septum, showing that a bifid condition of the uterus may pass unnoticed even in a number of labors.

GYNECOLOGY.

UNDER THE CHARGE OF

CHARLES BINGHAM PENROSE, M.D.,

ASSISTED BY

H. D. BEYEA, M.D.

The Ligature in Oöphorectomy.

Penrose (*American Journal of Obstetrics*, August, 1895) in a paper calling attention to some disadvantages which attend the commonly-used method of ligating the pediclein operations for removal of the uterine appendages. The methods usually employed by most operators, in a routine way, are the Tait-Staffordshire knot and the interlocking or link ligature. The objections to these he writes are: The liability to slip; the difficulty or impossibility in some cases of removing all of the ovary and tube. The fact that the broad ligament is puckered up and made more tense than normal and may for this reason cause subsequent pain and discomfort. An unnecessary amount of tissue is strangulated. He says most operators have seen cases, either in their own experience or in the experience of others, in which the ligature has slipped from the pedicle, either during the operation or some days afterwards. He thinks that this accident, usually unrecognized, is a very common cause of death after oöphorectomy. Tait has referred to a certain number of cases in his own experience in which hematoma occurred in the broad ligament some hours or days after operation. He (Tait) says, "I cannot form any exact estimate of how many cases of these operative hematoceles I have seen, but it certainly is not less than fifty, and is more likely to be seventy or eighty." Penrose believes that this accident is due to the retraction or slipping of the artery from the embrace of the ligature, while the remaining mass of tissue which forms the pedi-

cle is still retained, and the hemorrhage is, therefore, confined to the broad ligament. He has seen this accident happen before the abdomen has been closed, and has sought for and ligated separately the retracted vessels. Slipping of the ligature he says is due to the form of the mass of tissue which is ligated. The broad ligament is drawn up into a more or less conical shape, all parts converging towards the ligature, and the ligature is really placed at the apex of a cone, from which it may readily slip. The elastic artery, tied when upon the stretch, tends to retract and escape from the embrace of the ligature. The second objection is the difficulty or impossibility of removing all of the ovary and tube: where the broad ligament is tense, as it is often in single women, or if thickened from inflammatory deposit, it is sometimes impossible to bring the tube and ovary through the abdominal incision and to obtain a pedicle which can be ligated so that with safety all of the ovary may be removed. The third objection, the puckering and tension of the broad ligament, is probably of less importance than those just considered. However, he believes that some of the pain which women suffer after oöphorectomy is due to traction and countertraction exerted by different parts of the broad ligament upon a sensative cicatrix. The broad ligament is pulled up from different directions and converges to the cicatrix, which becomes the point from which the lines of traction radiate. The fourth objection appeals to the surgical sense. It is always better surgery to ligate the vessel alone than to include with it a mass of surrounding tissue. Penrose believes that the above objections may all be avoided by ligating the distal and the proximal portions of the ovarian arteries with distinct ligatures and then cutting away the tube and ovary. The method of procedure is as follows: The first ligature is passed through the broad ligament near the pelvic wall, securing the proximal portion of the ovarian artery. The second ligature is passed through the broad ligament at the uterine cornu, securing the distal portion of the artery. The second ligature may include the Fallopian tube if there be no disease of the isthmus, or it may be passed immediately beneath the tube if it be necessary to exsect the tube from the uterine cornu. With ligatures thus placed the tube and ovary may be completely and safely removed. Usually there is no bleeding from the portion of the broad ligament between the ligatures. It is not necessary to place both ligatures before cutting away the ovary and tube. The first ligature may be placed about the proximal portion of the ovarian artery and then the infundibulo-pelvic ligament may be cut, bleeding from the distal end being arrested with forceps. The advantages of this method he believes are: the ligatures are placed about the vessels while in its normal position, and there is no tendency to retraction or slipping. The minimum amount of tissue is included in the ligatures. All ovarian tissue can be removed. There is no traction whatever upon the scar.

Salipyrin in Uterine Hemorrhage.

Orthmann (*Berliner klinische Wochenschrift*, No. 7, 1895) has employed salipyrin as a hemostatic for uterine hemorrhage in fifty cases at the Martin polyclinic. He reports thirty-two cases where the patients were under observation for from nine to eighteen months. In twelve of these there was no positive improvement, in twelve others distinct improvement, and in eight the result was very good. The best results were obtained in those cases of menorrhagia which follow labor and abortion. Those complaining of severe menstrual hemorrhage associated with pain were undoubtedly relieved. In two of these cases of menorrhagia with disease of the uterine appendages the result was good. In four cases of associated metritis, perimetritis, and oöphoritis there was no apparent change, and it was also of little or no use

in seven cases of uterine hemorrhage which followed salpingo-oöphorotomy. Orthmann advises that salipyrin should be administered if possible for one or two days before the expected appearance of menstruation, and that it should be continued until the flow ceases. The dose advised is fifteen grains three times daily. He believes that further experimentation is desirable.

The Results of Curettement in Endometritis Fungosa.

Hans Vogelbach (*Inaug.-Diss.*, 1894) reports sixty-five cases of endometritis fungosa treated by curettement, with the following results: 69.2 per cent. were completely cured, and 13.8 per cent. were very much improved. They were under observation from one to six years. He advises that the operation should be performed with the patients in the Sims's position.

The Technique of Curettement.

Löhlein (*Centralblatt für Gynäkologie*, No. 14, 1895) has noticed through microscopical examination that the fundus and lateral walls of the uterus are the portions of the uterine cavity most likely to be slighted in curettement. He believes that, although the sharp spoon curette is more dangerous, it is the only instrument which can be employed to thoroughly scrape away the endometrium at the fundus, cornu, and lateral walls. The cutting edge of other curettes glides over the endometrium of the fundus at such a sharp angle that only the superficial epithelium is removed as a rule. The writer has practised this method of procedure and taught it to his students for the last seven years. The spoon curette he also believes preferable in removing intraparietal cancer of the cervical canal. He says that incomplete and irregular removal of the endometrium by the currette does little or no good.

Vaginal Section and Drainage for Pelvic Abscess.

Watkins (*American Journal of Obstetrics*, August, 1895), in a paper read before the Chicago Gynecological Society, May 24, 1895, reports a number of cases where he has performed vaginal section and thus drained a pelvic abscess with the best results. The operation is indicated,—

(1) When the condition of the patient is such as to make abdominal section extremely dangerous.

(2) When the abscess is large, of long standing, and situated low in the pelvis, and when the patient gives a history of peritonitis.

(3) When abdominal section reveals extensive and firm intestinal adhesions.

(4) When the abscess is on the floor of the pelvis and is complicated by rectal fistulæ.

(5) Vaginal section may be indicated for the separation of adhesions which fix the ovaries and tubes on the floor of the pelvis, and for examination of the ovaries and tubes.

(6) Puerperal abscess. These abscesses frequently involving the tubes and ovaries, and satisfactory results usually follow through drainage of them.

The writer has done vaginal section for pelvic abscess nineteen times, and in every case the result has been relatively satisfactory. In two cases operations for secondary abscesses were required; in one case abdominal section was necessary to complete the operation. Excepting in the two cases which developed additional or

secondary abscesses, the temperature became practically normal within a short time, and the patients have been out of bed at the end of two weeks. Many of the operations are of too recent date to permit a satisfactory report of the ultimate success, but some date back three years. None of the patients, to his knowledge, suffered especially from pelvic disease after the operation. Three have some enlargement to the left of the uterus, which may later on require abdominal section, and two of them have a sinus. The advantages of the operation are,—

(1) It is not dangerous to life.

(2) It is followed by little or no suffering.

(3) Recovery is rapid.

(4) No raw surfaces are left in the abdominal cavity to cause adhesions.

The objections to the operation are,—

(1) It is applicable in only a small per cent. of the cases of pelvic abscess.

(2) Diseased tissue is not removed.

The tissue may, however, become normal after the abscess is opened and drained, as has frequently been the case after spontaneous rupture or puncture of the abscess. The nature of the abscess must be considered in selecting this method of treatment. For example, tubercular or gonorrheal abscesses indicate excision more than abscesses due to some other infection. Watkins believes this operation should take the place of vaginal puncture or aspiration, since there is less danger of injury to the bladder, rectum, or some other portion of the intestinal tract. He has seen two cases where large blood-vessels have been injured with a fatal result. He advises vaginal section rather than celiotomy and secondary vaginal puncture, saying that celiotomy could be immediately performed if necessary. Vaginal section is performed as follows: The uterus is dilated, the uterine cavity explored, curetted, irrigated, and packed with gauze, if indicated. An incision about one inch long through the vaginal wall is made near the cervix, opposite the most prominent point of the tumor,—usually posteriorly. All connective tissue between the vaginal wall and the abscess is separated with the finger, or it may be necessary to divide some of the fascia with scissors. Careful exploration is then made determining whether the peritoneal cavity has been opened, and if so, it should be carefully walled off with gauze packing. The finger is then passed directly into the abscess, using a blunt instrument, if necessary. All pus is removed by thorough irrigation with sterilized water. Two drainage-tubes sutured together, one large and one small, are inserted and fastened to the cervix by sutures. Drainage should be continued as long as there is any discharge.

Hysterectomy in Doubtful Malignant Disease of the Uterus.

Vineberg (*American Journal of Obstetrics*, April, 1895), at the New York Obstetrical Society, reported a case of a woman, 35 years of age, who for three months had suffered from irregular uterine hemorrhages, and in whom examination revealed an enlarged uterus and patulous os. Curettement was performed and the fragments of uterine mucous membrane examined microscopically by Dr. Heitzmann, who reported the specimen to be adeno-carcinoma. With this pathological diagnosis hysterectomy was performed and the uterus presented to the society. Vineberg considered the specimen to look like simple fibroid or a fibroid with carcinomatous degeneration. Mundé referred to three cases of his own, in all of which the mucous membrane had been pronounced malignant by microscopical examination, yet in all three cases thorough curettement and the application of nitric acid had produced cures. He believes in the possibility of curing adeno-sarcoma

in the early stages by curettement and caustics. Goelet did not believe hysterectomy justifiable in a case like Vineberg's. Emmet said that in such cases the cervix should be dilated and the cavity of the uterus explored by the finger. That such an examination, aided by the curette and the microscope, would enable us to arrive at a positive diagnosis. Dr. Vineberg responded that in his experience the pathological diagnosis had always been correct, and that he felt himself justified in removing the uterus. Regarding the introduction of the finger into the uterus for diagnostic purposes, he was quite unable to pass the internal os, even when the patient was under ether, and the os dilated with steel dilators to within the bounds of safety. No microscopic examination of the removed uterus had been made at time of this report.

A Case of Anus-Vulvalis, with Remarks on Congenital Communication of the Vulva and Rectum.

Dwight (*American Journal of the Medical Sciences*, April, 1895) reports the following observation made on the body of a well-formed white woman, aged 32 years, apparently a virgin: There was no anus, but the rectum opened into the vulva just above the posterior commissure by an orifice which would admit a large finger. The vulva was otherwise quite normal, except that the hymen was poorly developed. It consisted of merely a slight fold above and at the sides; in fact, it was quite indefinite. There certainly were no carunculæ myrtiformes. No depression or suggestion of the place of the normal anus was detected before dissection, though carefully looked for, but after the parts had been removed from the body there was a distinct puckering of the skin about one inch back of the vulva. There was no irritation of the skin about the vulva indicating incontinence of feces, nor was this observed during the three weeks the woman passed at the almshouse. It was impossible to dissect the parts very thoroughly without destroying the specimen, but the following facts were observed. The rectum was smaller than usual. It ran from the tip of the coccyx along the floor of the pelvis, continuing tubular to the last, without a well-marked dilatation. Although the woman was not fat, it might have required an incision three-quarters of an inch in depth to reach the gut from the puckered point. No sphincter could be detected at the termination of the rectum. The vagina was normal, and capacious above the entrance. The levator ani was very strong. Cases of anus vulvo-vaginalis, as they are commonly called, are very rare, especially in the adult. Almost all cases reported in the literature are those of infants. Many of these were successfully operated upon. Most of the cases in which the rectum communicates with the vagina proper are those in which there is a double vagina and also a normal anus. In a case reported by Tuck the opening in the vagina was closed by a sphincter. There are excessively rare cases observed presenting a normal anus and an opening of the rectum into the vulva which is unsuspected during virginity. Cases of anus vulvo-vaginalis have been reported by *Deulsh*, *Tuck*, *Caradec*, *Springfeld*, *and Reichel*. Buckmaster (*Transactions of the American Gynecological Society*, Vol. xix, 1894) enumerates fifty-one cases of this deformity besides that of his patient. Of these, fourteen were adults, including one aged 16. This list does not include the cases reported by *Dwight*.

PATHOLOGY.

UNDER THE CHARGE OF
JOHN GUITÉRAS, M.D.,
ASSISTED BY
JOSEPH McFARLAND, M.D.

The Causes of Death in Croupous Pneumonia.

Bollinger (*Münchener medicinische Wochenschrift*, August 6, 1895) believes that croupous pneumonia, a typical local infectious disease, pursuing in the majority of cases a very regular course, is not dangerous on account of the duration or the intensity of the fever. The impairment of the function of the lung is likewise insufficient to explain death. The edema so frequently found in the parts of the lung spared by the disease is not the result of a passively increasing collateral hyperemia, but of cardiac failure.

The collapse-symptoms in croupous pneumonia and the fatal weakening of the heart are dependent on *oligemia*, which leads to impaired nutrition of the cardiac muscle, already weakened by the fever and the extra demands upon it. Anemia of the brain may cause disturbances of innervation of the heart, and this may be an additional factor. The exudate into the lung tissue may be likened to a venesection produced by the pneumococcus, which in a few days deprives the blood of a large quantity of important constituents. The reason why death takes place so early, and usually in the same stage of the disease from the sixth to the eighth day, corresponding to the transition from red to gray hepatization), is probably because the exudate has to attain a certain acme before life is imperilled.

If these facts are applied to therapeusis, it follows that, in addition to the usual treatment of pneumonia, every effort should be made to combat the oligemia. Large quantities of fluids should be supplied to the system through every available channel, even in the form of saline infusions. This should be done at an early period before collapse-symptoms have manifested themselves.

Malignant Leiomyoma and Myoma Sarcomatodes.

Morpurgo (*Zeitschrift für Heilkunde*, 1895, Band XVI, Heft 2 and 3, p. 157) describes two tumors that were obtained from the body of a woman, aged 54 years. The first was one of several nodules implanted in the uterine wall; the second, a tumor from the small intestine. Study of the uterine growth showed that the tumor tissue proper consisted of a fibrillar ground substance, in which spindle-cells and muscle-fibres were embedded. Some of the spindle-cells contained rod-shaped nuclei and closely resembled unstriped muscle-fibres; others were shorter and provided with oval nuclei, and bore no resemblance to muscle-cells. Multinucleated giant-cells were also found. Abundant mitotic figures were present, both in cells belonging to the muscular tissue and in the spindle-cells, as well as in the cells of the supporting matrix. Despite the apparently active karyokinetic processes, the growth did not attain the characters of an adult tissue, either of the muscular or the connective-tissue type.

The newly-formed cells showed a tendency to remain in the embryonal state, and in places gave to the tumor the appearance of a spindle-cell sarcoma. It differed from this, however, in the presence of smooth muscle-cells and of transitional forms

between these and sarcoma-cells. The author would apply to this tumor the term *myoma sarcomatodes*, which was given to a similar neoplasm by Williams.

The growth from the intestine consisted of a fibrillar and granular matrix and of large cells undergoing karyokinetic changes. The cell-protoplasm contained small lumpy masses, showing a marked affinity for protoplasmic stains. They differed from the so-called parasites hitherto described as occurring in sarcoma, and are believed to be degenerative products. The tumor seemed to originate in the muscular coat of the bowel, the cells of which were transformed into tumor-cells, mitosis at the same time contributing to the increase in the number of elements. In the centre of the tumors the cells were very irregular; giant-cells were also seen. The growth had a distinct tendency to invade both the serous membrane and the mucosa. The author believes that the neoplasm was not originally a myoma, but that it was formed by an atypical hyperplasia of the pre-existing normal muscle-fibres, and suggests the name *leiomyoma malignum*.

RESULTS OF SERO-THERAPY IN THE TREATMENT OF CANCER AND SARCOMA.

BOUREAU (*Compt-Rend. de Soc. de Biol.*, Tenth Series, T. II, No. 27, August 2, 1895) treated seven cases with the serum of an ass injected according to the method of Richet and Héricourt. The animal received fifty-five cubic centimetres of a liquid obtained from an epithelioma of the breast and a carcinoma. The injections produced a prompt rise of temperature of 3° C., which was followed by a fall that was rapid after the first, but slower after the later injections. Two bleedings, practised six days and fourteen days respectively after the injections, yielded the serum which was injected into the patients.

Case I.—Cancer of tonsil with rapid course. No improvement.

Case II.—Sarcoma of testicle recurring fifteen days after removal. Slight amelioration; final result negative.

Case III.—Cancer of rectum. Diminution of pain and discharges; no modification of tumor itself.

Case IV.—Cancer of breast recurring before operative incision had healed. Result: prompt healing of wound; no influence on the secondary nodules.

Case V.—Cancer of axillary glands secondary to mammary cancer. Slight improvement.

Case VI.—Recurring osteosarcoma of rib with lymphatic involvement. Diminution of growth by one-half; disappearance of pain; persistence of lymphatic enlargement.

Case VII.—Recurrent cancer of tongue; slow asphyxia; tracheotomy. Under the influence of the injections, diminution of tracheal secretions, restoration of permeability of larynx, permitting removal of the canula. Despite this the neoplasm persisted.

The author's conclusions are:

(1) That the serum of animals that have received inoculations from cancerous tumors produces a rapid amelioration (six cases in seven), as regards pain, congestion, and suppuration.

(2) That in the majority of cases this amelioration persists, but does not impede the course of the cancerous disease.

(3) That although the method is not curative of cancer in the strict sense of the word, it nevertheless constitutes a form of treatment superior to any employed at present.

Héricourt and Richet, at the same meeting of the Société de Biologie, stated that the immediate effect of their method is without exception the production of a striking improvement,—the pains disappear, the general health is re-established, the tumor diminishes in volume, the ichorous secretions are arrested, and cicatrization at times takes place.

MISCELLANEOUS.

The Seventh Annual Meeting of the Tri-Medical Society of Alabama, Georgia, and Tennessee,

will be held in Chattanooga, Tuesday, Wednesday, and Thursday, October 8, 9, and 10. A large attendance is expected. An attractive programme will be announced shortly.

The American Public Health Association.

The American Public Health Association will hold its twenty-third annual meeting at Denver, Col., October 1, 2, 3, and 4, 1895.

The Chair of Pathology in the Jefferson Medical College Vacant.

It is announced that the chair of pathology in the faculty of the Jefferson Medical College in Philadelphia is vacant.

Resorcin as a Test-Agent for Albumen.

Carrez (*Journal des Sciences Médicales de Lille*, 1895, No. 12, p. 272) recommends the employment of a solution of resorcin, 1 to 3, as a test-agent for the presence of albumen in urine. The solution is overlaid in a test-tube with urine, and if albumen be present there immediately forms a white ring at the line of junction of the two fluids. Alkaloids (at least in such concentration as they may be present in the urine), urates, and urea give rise to no ring. The presence of peptone may, however, do so, but this disappears if the tube is placed in boiling water. Resorcin is believed to be no less delicate a reagent for albumen than nitric acid, and it possesses the advantage that a response occurs whatever the reaction of the urine. —*Medical News.*

CORRESPONDENCE.

TWO DEATHS FROM THE INHALATION OF CHLOROFORM IN READING AND VICINITY DURING THE PAST THREE YEARS.

To the Editors of the UNIVERSITY MEDICAL MAGAZINE:

DEAR SIRS:—On April 8, 1890, at a meeting of the Berks County Medical Society a paper was read, entitled "Chloroform Anesthesia," by Dr. John T. Carpenter, of Pottsville, Pa., which was published in the UNIVERSITY MEDICAL MAGAZINE, June, 1890. The drift of this paper and the discussion which followed was that chloroform, if skilfully administered, was a safe anesthetic, and was preferable to ether on account of its safety, speediness of action, and general absence of any unpleasant sequelæ. This discussion disclosed almost a unanimous opinion favorable to the use of chloroform as an anesthetic. One distinguished medical officer of the United States navy and two representative physicians of Philadelphia were present, and they also displayed a strong preference for the use of chloroform. Only one physician besides myself, Dr. W. Murray Weidman, a gentleman of large surgical experience, declared himself favorable to the use of ether. He in substance said that he never had any experience with chloroform; that he always used ether, and that the exigencies of railway surgery were such that he frequently operated, while an ordinary workman administered it, and that he never had any disastrous results from its employment. In this discussion I opposed the use of chloroform with all the ability that I could command, and made the prophecy that if the opinions I had just heard would be put in actual practice, they surely would result in an occasional death from the use of chloroform, which could have been avoided by the use of a safer anesthetic; and it was not necessary for me to wait many years before the truth of this prophecy was realized. I give the particulars of this meeting as it reveals the attitude of the local profession towards the use of chloroform.

In this community a large number of the physicians are very favorably disposed to the use of chloroform; I am, nevertheless, absolutely certain that it is not as frequently used as ether; and if these two anesthetics were of equal safety, the deaths resulting from the use of ether would exceed those from chloroform. In a paper

published by me, August, 1890, in the MAGAZINE, which was designed as a reply to Dr. Carpenter's paper, I stated, after investigation, that I had learned of two deaths from chloroform in this locality, and was unable to discover any from ether. Since then two more deaths from chloroform have happened in this vicinity, making a total of four.

With the view of impressing upon the profession the unavoidable dangers attending the use of this dangerous anesthetic, I will briefly relate the circumstances of these last two deaths. About three years ago a competent physician of this city, now deceased, went to a neighboring village to operate on a multiple stricture of the urethra in a middle-aged gentleman. After the chloroform was inhaled a few moments the patient, without a moment's warning, suddenly died. The physician, who gave the anesthetic, admitted to me in private conversation that the only cause of death in this case was chloroform, and expressed regret that he had not used a safer anesthetic.

About one month ago a girl of 16 applied to the Reading dispensary for the removal of a small but disfiguring growth upon one of her eyelids. The two competent physicians in charge endeavored to persuade her to submit to the operation without an anesthetic, but she insisted upon having it. According to a newspaper report, made by the attending physicians, about fifteen drops of chloroform were placed on a towel, and after taking several inhalations she sprang from the table. She was again persuaded to get on the table, and the instant the inhalations were recommenced, she died. The coroner's jury rendered the following verdict: "Death was caused by heart-failure while being put under the influence of chloroform. . . . We agree that the chloroform was administered in the usual professional manner." The physicians in this case contended that the girl died from fright, and not from the anesthetic; but I think that the verdict was a just one, and that fright was insufficient to account for death. If it was a factor in the death of this unfortunate girl, it was only possible in conjunction with the paralyzing influence of chloroform.

I believe that if all the deaths from chloroform were published in the medical journals the number would be enormous, and this publicity would compel the abandonment of chloroform as an anesthetic, save in a few cases in which it would be specially indicated.

JAMES W. KEISER, M.D.

READING, PA.

BLOOD SERUM OF THE SNAKE AS AN ANTIDOTE AGAINST VIPER POISON.

New York, U. S. A., August 29, 1895.

W. J. Simpson, M.D., M.R.C.P.,
Editor of India Medical Gazette, Calcutta, India.

Sir: Why would it not do in the development of immunity from snake bite, instead of pursuing the method of Professor Fraser, of Edinburgh, to use the blood serum of the snake that has inflicted the wound? Certainly, if there is an antidote against the viper poison, that antidote must be the blood of that snake. We should thus in every case have the remedy ready made, at hand, instead of going through Dr. Fraser's complicated process of producing an artificial immunity in the lower animals.

This theory is the one which I have actually put into practice for a number of years against scarlet fever: I inoculate children in a family who have not had scarlet fever, when they are exposed to infection, with blood serum drawn from a blister of their brother or sister who has had the disease, and possesses natural immunity. In no case have I had an outbreak of the disease in a family thus protected.

Yours truly,
Albert S. Ashmead, M.D.

BOOK NOTICES.

A German-English Medical Thesaurus. For Physicians and Medical Students. By Rev. Henry Losch, M.D., author of "An Improved Method and Complete Manual for the Systematic and Practical Study of the German Language," etc. Philadelphia: Published by the Author, 4109 Pine Street, 1895. Price, $2.50.

In the preparation of this work the author has kept before him the needs of the physician and student, as an examination of the book will show. The first part consists of German medical terms relating to man, arranged systematically and defined. The plan adopted is that of grouping all words referring to a certain subject, as, *e.g.*, the parts of the body, the parts of the head, the vascular system, the digestive organs, the five senses, the names of diseases, etc. In the second part hygienic, medical, surgical, and domestic subjects are

arranged in the same manner. More than 10,000 words are thus collected, which are numbered consecutively.

Part third contains dialogues such as take place between physician and patient, idiomatic phrases and proverbs, a schedule of the terminations of each declension, and a complete list of irregular verbs.

There is, in addition, a German index and an English index, both arranged alphabetically and numbered. The numbers refer the reader to the definition, which appears in the first part.

The work is thus seen to have a very wide range of usefulness, and, while not a general dictionary, it has served us well as a German-English medical lexicon.

Suggestions to Hospital and Asylum Visitors. By John S. Billings, M.D., Director of the Hospital of the University of Pennsylvania, and Henry M. Hurd, M.D., Superintendent of the Johns Hopkins Hospital. With an introduction by S. Weir Mitchell, M.D. Philadelphia: J. B. Lippincott Co., 1895.

This little manual cannot fail to be useful to all interested in the administration of hospitals and similar institutions. In addition to the suggestions prompted by their own very large experience in hospital management, the authors have had the counsel of Drs. S. Weir Mitchell, J. M. Da Costa, and J. William White in the preparation of the work. The book deserves to be in the hands of every one concerned in the management of hospitals and other institutions of this kind.

Ophthalmic Methods employed for the Recognition of Nerve-Disease. By Charles A. Oliver, A.M., M.D. Philadelphia: University of Pennsylvania Press, 1895.

In this monograph the author describes the most important ophthalmic methods employed for the detection of peripheral and central nerve-disease. The topics are so arranged that the reader may at a glance be able to group those methods of precision that pertain to the recognition of allied conditions, thus placing the entire subject-matter in a logical and definitive order, a plan that becomes eminently useful in the careful study of the various neuroses.

While the work is of general medical interest and importance, it will be found especially valuable by the ophthalmologist and neurologist in the systematic study of cases of affections of the nervous system.

Transactions of the American Orthopedic Association. Vol. vii, 1895.

The present volume is undoubtedly one of the best of the series and reflects much credit on the Association. The number and value of the contributions show great activity in this department of medicine.

The large number of foreign contributors is worthy of note. Papers have been furnished by Owen and Little, of London; Grattan, of Ireland; Kaptein, of Holland; Lorenz, of Vienna; McKenzie, of Toronto; and Schede, of Hamburg.

Dr. Phelps, in the president's address, sees the scope of orthopedic surgery gradually widening. In addition to the diseases heretofore included in this department, he would add acute joint-disease attended with deformity, fractures, hernia, etc.

The tendency to perform the open operation for club-foot seems to be increasing, if we may judge from the expressions here set forth.

Congenital dislocation of the hip-joint, rachitic deformities, and hip-joint disease were discussed at considerable length, and the various subjects embraced under this department are well represented.

REPORT OF THE FIRST MEETING OF THE AMERICAN ACADEMY OF RAILWAY SURGEONS.

This record of the first meeting of the American Academy of Railway Surgeons is an interesting little volume, setting forth the needs of such an organization and the objects which it is intended to accomplish. A number of papers were presented on topics of interest to those engaged in this special line of work. The fellows already number more than ninety.

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NOVEMBER, 1895.

CHILLS IN TYPHOID FEVER.[1]

By William Osler, M.D.,
Professor of Medicine, Johns Hopkins University.

In the systematic works on typhoid fever scarcely a reference to chills is to be found, except as a symptom of the onset of the disease. Now and again in the journals a case is reported in which chills have been a special feature, and the complication is spoken of as a manifestation of ague.[2] An important contribution to the subject was made at the meeting of the Association of American Physicians,[3] in 1894, in the discussion which followed the reading of Gilman Thompson's paper upon the concurrence of malaria and typhoid fever. Peabody stated that he had twice seen chills in connection with pyemic abscesses in the kidneys. He had also seen "severe chills followed by elevation of temperature as a symptom in typhoid fever, which did not affect the subsequent course of the disease; the patient getting well without the administration of quinine, and getting well apparently as other patients do who have not these symptoms." Janeway remarked that the chills were not necessarily due to the development of an intercurrent disease. He held that they were often caused by treatment. "If we give the modern antipyretics in large doses chills will occur, which are due simply to the fact that the temperature has been depressed, and then it rises, and this rise is accompanied by mild and sometimes by severe chills. Drop your antipyretics and the chills disappear."

(*a*) *At the Onset of the Disease.*—Of seventy-nine cases treated to

[1] From the forthcoming "Studies on Typhoid Fever," No. 2, Johns Hopkins Hospital Reports, Vol. v.

[2] Short, Lancet, 1891, 1.

[3] Transactions, Vol. ix.

conclusion during the sixth year of the hospital work there were thirteen in which the disease began with shaking chills. In two cases there were several severe rigors; in three cases there were two; while in eight the rigor was single.

(*b*) *At the Onset of the Relapse.*—Bouveret,[1] who has reported four interesting cases, regards the chills as due to an irregular or disturbed elimination of the poison, a large volume of which, thrown into the blood in a short period, may cause a rigor.

The following are among the important conditions, with illustrative cases, in which chills occur:

Case I.—*Severe Primary Attack; no Chill at Onset; Normal Temperature on Forty-first Day; Apyrexia for Twenty-three Days; Severe Chills at Onset of Relapse; Fever for Forty-two Days; Apyrexia for Forty-two Days; Second Relapse, without Chills, of Fourteen Days' Duration.*—Tertia C. W., aged 22 (?) years (Hospital No. 8488), admitted October 24, 1893, on the seventh day of the fever. There were no chills at the outset. The fever was high, 103° to 105.5° F., and she had seventy-five baths. The temperature fell to normal on the forty-first day. For twenty-three days there was no fever. On December 20 the fever of the first relapse began, and rose to 103.5° F. by 10 A.M. of the 21st, then she had the first chill, not a severe one. At 2 P.M. there was a second chill, in which the temperature rose to 106° F. A third one occurred on the morning of the 23d, and at 11 A.M. the temperature was 106° F. By sponging it was reduced to normal. On the 24th, at 3.30 A.M., she had a fourth chill, in which the temperature rose to 104° F. The last three chills were severe and she sweated profusely after them. On the 25th there was no chill; on the 26th there was a slight chill at 2 P.M. These five chills initiated a relapse of great severity, which persisted for forty-two days. There was then a period of apyrexia of six weeks, which was followed by a second relapse of two weeks' duration. There was nothing in the mode of onset of the first relapse to account for the development of the chill.

Case II.—*Severe Primary Attack; Severe Single Chill at Onset of Relapse.*—Edith T., aged 13 years (Hospital No. 6487); admitted December 24, about the end of the second week of a very severe attack. On January 2 the temperature for the first time reached normal, and remained throughout the day between 98° and 99° F. On January 3 she had a severe chill in which the fever rose to 105° F. and fell in the evening to 99° F. Throughout the 4th the fever ranged between 104° and 105° F. On the 5th it fell to 102° F., and on the 6th the temperature was normal. After three or four days of

[1] Lyon Médicale, 1892.

irregular fever, there was continuous high fever from the 11th to the 18th, with rose-spots and enlarged spleen.

(*c*) *Chills as a Result of Treatment.*—Perhaps the most common cause of chills in typhoid fever is the use of medicine, particularly antipyretics. Following a dose of five or ten grains of antipyrin, a chill is not infrequent. Last year I saw, in consultation, a patient who had had chills for ten days and had become very anemic. The physician thought the chills were septic, and was surprised when I suggested that the antipyrin, which had been given in full doses, was the cause. The chills ceased with the last dose of the medicine.

In one of the following cases a chill followed the injection of a sterilized culture of typhoid bacilli, in two the external application of guiacol.

Case III.—*Chill following a Hypodermic Injection of Sterilized Culture of Typhoid Bacilli.*—Bettie G., aged 27 years (Hospital No. 8616); admitted November 12, 1893. The attack was of moderate severity. On November 15, 17, and 19, there were given injections of sterilized cultures of typhoid bacilli. The temperature rose only one or two degrees without rigor or sweating. On the 20th, at noon, when the temperature was 102° F., she was given another injection. The temperature rose gradually, and at 1.40 P.M. she had a chill, in which the temperature was 105.8°. It was quickly reduced by sponging. Another injection on the 23d was not followed by a chill.

Case IV.—*Chill following the Application of Guiacol to the Skin.*—Evelyn H., aged 24 years (Hospital No. 9075); admitted January 24, 1894. The temperature ranged about 104° F., and was very little influenced by the baths. For the first week in hospital she was much nauseated, and vomited nearly everything that was given. On the 29th, at 4 P.M., guiacol was painted on the skin as an antipyretic, and again on the 31st, and February 1. After one application she had a slight chill; and on February 1 thirty minims of guiacol were painted on the skin of the abdomen at 11.40 P.M. The temperature was 103.2° F. At 2 A.M. it had fallen to normal. From 3 to 3.30 A.M. she had a heavy chill followed by a profuse sweat. The temperature rose very slowly, and by 6 A.M. was 102° F.

Case V.—*Chill following the External Use of Guiacol.*—Elizabeth M., aged 19 years (Hospital No. 9158); admitted February 5, 1894. For the first three days the fever ranged from 102° to 104° F. On the 6th, at 8.30 P.M., the temperature was 103.5° F. One drachm of guiacol was painted on the skin of abdomen. By midnight the temperature was 97.5° F., and she had a severe chill, after which the fever rose rapidly, and by 2 A.M. reached 104.2° F.

(*d*) *Chills with the Onset of Complications.*—During the height of

the fever, or after convalescence has begun, a rigor may precede the development of pneumonia, pleurisy, acute otitis, suppuration in the mesenteric veins, pyemic abscesses of the kidney, perforation of ileum or appendix, or an acute periostitis. It sometimes occurs with thrombosis of the femoral or saphenous veins. In rare cases it may precede the development of acute and fatal hyperpyrexia. On the whole, however, rigors are rare in the complications of typhoid fever, as will be noticed in the full analysis which I have given of our cases.

In thrombosis a chill may occur at the onset, or recurring rigors may be associated later with suppuration in the clot and with the development of pyemia.

Case VI.—*Severe Chill with Onset of Thrombosis of Internal Saphenous Vein.*—Theodore B., aged 24 years (Hospital No. 10,298); admitted July 5, 1894, about the fifteenth day of the fever. The temperature range was from 103° to 104° F.; and from the 13th to the 15th was almost normal. On the 16th thrombosis of the right internal saphenous vein occurred with moderate pain in the thigh, but no swelling. The temperature rose without a chill to 103° F., persisted throughout the 16th, and did not fall to 100° until the morning of the 18th. Then it remained between 99° and 100° F. until the morning of the 22d, when, at 6.45 A.M., he had a severe chill, and by 8 A.M. the temperature was 105.5° F. The paroxysm lasted for twenty-four hours and was followed by heavy sweats. From 8 A.M. on the 23d the temperature remained normal until the evening of the 26th, when there was a rise to 104.2° F. without a chill. From this time there was no further fever. There was a marked leucocytosis at the time of development of the thrombus in the left saphenous, 21,250 per centimetre. Four days later the leucocytes had fallen to 5750 per centimetre. Subsequently the leucocytes rose during convalescence to above 10,000 per centimetre, and the patient became a little anemic.

Case VII.—*Severe Attack of Fever; Thrombosis in the Femoral Vein; Eight Days later a Severe Rigor.*—September 23, 1895. While making rounds in Ward F my attention was called to the patient in bed 18, whom we found in a severe rigor. He had been very ill for ten days. On September 15 a thrombus had developed in the left femoral vein, and the foot and leg were swollen. He had a very dry tongue and was delirious. This morning at 8 A.M. the temperature was 102° F. At ten o'clock the chill began, and he shook for twenty-five minutes. The temperature rose during the paroxysm to 105° F. He was very cold and blue during the chill, but half an hour later, when I left the ward, he was feeling very comfortable. No further chills occurred; he became very emaciated, but the temperature fell to normal on September 30.

In the following case the chill preceded a rapid and fatal rise in the fever.

Case VIII.—*Admission in the Third Week; much Bronchitis; Suffusion of the Face; Delirium; a Severe Rigor followed by Cyanosis, Hyperpyrexia, and Death.*—While revising this paper, September 21, 1895, Dr. Parsons came in to tell me that a private patient in Ward C had died suddenly in a state of hyperpyrexia, after a severe rigor.

The patient, W. W., aged 40 years, was admitted September 14. About August 15, at Ocean City, he first began to feel wretched and miserable. Thinking that the sea did not agree with him, he went to Blue Ridge Summit. About September 1 he became very much worse. The gastric symptoms were very aggravated, and he vomited almost everything he took. He had been treated for malaria. He had had headache and a good deal of prostration, and had taken very large doses of quinine. The temperature at first was moderate, not reaching 104° F. He took the baths very badly, was very livid and blue after them, and on September 19 there was so much bronchitis that it was thought better to substitute the sponges. His pulse was good, and the heart-sounds clear; but he had constantly a suffused, somewhat ashy, appearance of the face. The abdomen was distended and soft. There were no characteristic rose spots; a few pigmented spots looking like faded roseola. His mental condition was not satisfactory. He was excessively frightened about himself, and on September 17 and 18 tried to get out of bed.

On September 20 and 21 he seemed somewhat better. The temperature had not been high, the morning and evening record for forty-eight hours not above 103.5° F. There was a slight trace of albumin in the urine, and a few granular and hyaline casts. A musty, very characteristic odor was exhaled from the skin. I saw him at half-past eleven on September 21. The bronchitis was better, and I ordered the baths to be resumed. The morning temperature was 102.5° F. At 10 A.M. it had risen to 104.3° F. At the visit he was sweating profusely, but he seemed better and was rational. He had taken his nourishment very well. At one o'clock he had a very severe chill, shaking violently. The respirations were hurried, with loud expiratory blowing. The expression of the face was that of fright, and he constantly talked of some one trying to kill him, and called out for help. The pupils were widely dilated and equal; he sweated profusely. At noon the temperature was 104.2° F.; at 1.45 P.M. it had risen to 106.2°. At this time the chill had almost disappeared. He had become, however, quite cyanosed, the hands purple, the lips blue, and the face very dusky; the pulse could scarcely be felt. There was from this time slight twitching of the left side of the face,

but no regular convulsion. The cyanosis became more marked, and he became progressively weaker. The temperature rose to 107.5° F. at 2 P.M., the highest recorded temperature of any case of typhoid fever treated in the hospital. He died at 2.45 P.M.

(*e*) *Chills (Septic?) during Convalescence in Severe and Protracted Cases.*—In a few instances rigors occur throughout the course of the fever, without any local symptoms to account for them. The following cases are of great interest, inasmuch as the chills were not associated, so far as could be ascertained, with any complication, and, though very alarming, they gradually subsided with complete recovery of both patients.

CASE IX.—*Severe and Protracted Fever; In the Seventh and Eighth Week of Illness Recurring Chills with High Fever; no Local Signs; Recovery.*—Thomas W. T., aged 36 years (Hospital No. 8667); admitted November 21, 1893, on about the eighth day of the fever. The temperature range was high and the constitutional symptoms severe. He was given during the first week injections of sterile cultures of typhoid bacilli in thymus gland bouillon, without any influence. On November 28, an injection was given at 2 P.M. The temperature did not rise more than a degree. At 12 midnight he had a shaking chill of twenty minutes' duration, followed by profuse sweating. The injections were omitted and he was ordered to be bathed. He had another chill on the 30th, at 6 A.M. The temperature rose to 105° F. The patient did well with the baths and sponges, though he had delirium, tremor, a dry tongue, and a slightly distended abdomen. On December 11 the temperature rose to 103.5° F., and he had a sponge bath, after which he had a chill. Then about the forty-fourth day of the illness the temperature reached normal. He had been very ill and had a slight phlebitis of the long saphenous vein. From December 13 to the 28th he had an irregular fever, touching normal, or 99° F., each day, and rising to 103° or 104°. On the 25th, with this rise, he had a profuse sweating; on other days the sweats were less marked.

As the fever subsided he looked much emaciated, and the abdomen was scaphoid. There was no diarrhea and he had a good appetite. On December 29 to 31, there was irregular fever, but lower than before, and it seemed as if convalescence had begun. Though he felt well, the general condition was not very favorable; he had two, sometimes three, soft movements daily. The pulse ranged from 90 to 108, and he had become very much emaciated. During the first ten days of January he had a series of severe chills. The temperature rose to 103.5° and 105° F., and in the intervals was normal or subnormal. There were seven chills during the ten days. The paroxysms lasted from twelve to fifteen hours.

The most careful examination failed to show any local lesions to account for the chills. The examination of the blood was negative. He became very much emaciated. There was a systolic murmur at the base. The spleen was still palpable. After January 14, the temperature remained normal. The recovery was slow on account of the great wasting. On sitting up, February 1, he weighed 123 pounds; on March 3 he weighed 143 pounds; and at the time of his discharge, March 15, nearly 150 pounds.

Case X.—*Attack of Moderate Severity; in the Fifth, Sixth, Seventh, and Eighth Weeks Chills of Great Intensity; Recovery.*—November 6, 1894. I saw at Charlottesville, Va., with Dr. Hugh T. Nelson, V. S., aged about 20 years, a student, who had been ill with fever since October 1. He had come from Charleston, September 15, and shortly before, while shooting, had been exposed in a very unhealthy region. The attack was one of moderate severity; the temperature ranged between 104° and 105° F., without many serious symptoms; but in the fourth and fifth weeks his temperature did not decline. On November 1, he had a chill, and complained of pain in the right side. It was noticed that there was some fulness over the region of the liver, with tenderness on pressure. On the following day he had two very heavy rigors, and on November 3, Dr. Nelson, fearing that suppuration had occurred in the liver, aspirated in four different places without finding any pus. The patient had another chill on the 4th, and another on the 5th. When I saw him the condition was as follows:

Considerable emaciation; dorsal decubitus, but he can lie comfortably on either side. Pulse 120, moderate volume. The temperature at 11 A.M. was 100° F. (he had had a chill at 2 A.M.). The skin was moist and he had been sweating profusely. The abdomen was a little swollen, nowhere tender, no spots visible. The edge of the spleen was not palpable; the vertical splenic dulness seemed somewhat increased. The right hypochondriac region looked a little full, but the intercostal spaces were not obliterated, nor on pressure was there special tenderness in the region of the liver. The liver dulness began at the seventh rib in the nipple line, and extended to the costal border. In the mid-axillary line the area of vertical dulness seemed somewhat increased. Behind there was flatness to three fingers' breadth below the angle of the scapula. Over the infrascapular region there was feeble breathing, and on deep inspiration a few fine, crackling râles, and the tactile fremitus was diminished. The heart-sounds were clear. There was no pus in the urine. There was no otitis media.

Taking into consideration the facts of a swelling in the right

hypochondriac region, and the existence of dulness in the right infrascapular region, I thought it possible there might be an effusion, or a collection of pus high in the right lobe, projecting into the pleura; and I inserted an exploring needle in two places, in the dull area, in the infrascapular region, but obtained nothing.

Altogether it did not seem to me likely that there had been suppuration in the liver, and I thought it more probable that the case was one of septicemia occurring late in typhoid. The subsequent course of the case is as follows: From the 6th to the 12th he had no chill; on the latter date he had a slight one, lasting twenty minutes. The temperature range was from 100° to 103° F. On the 16th, 17th, and 18th he had slight chills. The temperature range was not quite so high, from 99° to 103° F. From the 20th to the 26th the temperature was lower, only reaching 101° F. On the 27th and 28th he again had chills, and on the 30th a very severe chill, the temperature rising nearly to 106° F. in the evening. From December 1 to the 11th he has not had any chills, and the temperature has been nearly normal. He has also been improving, though slowly.

Subsequently the patient was removed to his home in Charleston, and made a very satisfactory recovery, with the exception of a slight periostitis of both tibiæ, which developed late in convalescence and did not go on to suppuration.

(*f*) *Chills due to Concurrent Malaria.*—While attributed, as a rule, to malaria, chills occurring in the course of typhoid fever are very rarely due to this cause. In the cases already given the blood examination was negative. Among 333 cases of malaria and 389 cases of typhoid fever treated in the wards, in no instance have the diseases been concurrent. The cases reported by Gilman Thompson, in the paper already referred to, appear quite conclusive, as the parasites were found during the chills. We have had several instances in which the typhoid fever followed malaria (see Vol. IV of the Reports). A case of great interest is given at page 300 of this report, in which a chill occurred at the height of an attack of typhoid fever which followed a continuous malarial fever.

Case XI.—*Continuous Malarial Fever of Eleven Days' Duration; Repeated Chills; Convalescence; Severe Typhoid Fever with Characteristic Symptoms; Chill at the Height of the Fever.*—Kate I., aged 31 years (Hospital No. 11,331); admitted November 6, 1894. The history is given in full at page 302. The attack followed one of malaria, which lasted from September 23 to October 7. She had frequent chills at the outset and organisms were found in her blood. On admission, November 6, she had all the symptoms of typhoid fever. The blood examination was negative. On the 7th, at 4 30 P.M.,

when the temperature had been continuously between 104° and 105° F. for twenty-four hours, she had a chill of moderate severity, not followed by any rise in temperature. Unfortunately the blood was not examined during the chill; but repeated examinations were made in her case throughout a prolonged illness and always with negative result.

A PROTRACTED CASE OF TYPHOID FEVER: SOME FEATURES OF TREATMENT.

By J. H. Musser, M.D.,

Assistant Professor of Clinical Medicine, University of Pennsylvania; President of the Pathological Society of Philadelphia.

The history of the case which I take this opportunity of bringing forward is not detailed because of the occurrence of any unusual complications. It is of extreme interest because of the long duration of the illness, and is reported chiefly because the methods of its management serve as a text for a few remarks upon some measures that may be employed in the treatment of typhoid fever if the treatment by cold baths is impracticable. I specifically mention the treatment by cold baths because I firmly believe in their efficacy, and from the experience I have had I am fully of the belief that could it have been possible to have given this patient baths, the duration of the disease would have been shortened, and the dangers to life which were constantly present averted.

Two features of the case are worthy of mention. First, the long duration of the disease, and, second, the extreme prostration which attended it, on account of which the life of the patient was despaired of for many weeks. The patient's temperature did not become normal until seventy-three days after the beginning of the disease. I am fully aware that there are many cases of typhoid fever on record in which the course of the disease continued over a longer period. Some of them no doubt were protracted because of repeated relapses; others apparently because of the persistence of the primary affection. I believe that in the case I am here reporting no single complication is responsible for the length of the disease.

Symptoms.—The *prostration* was pronounced from the very first. The patient was naturally delicate, and was a much overworked nurse in the wards of the Presbyterian Hospital. She was slight of build and anemic. Prostration was indicated by a weak pulse; by frequent syncopal attacks; by persistent coldness of the extremities;

by the ready production of shock when cold was applied externally, or when drugs were administered to reduce temperature. The prostration and the anemia were added to by the occurrence of a moderate hemorrhage from the bowels on the twenty-sixth day of the disease. This hemorrhage was repeated on the twenty-seventh day of the disease, but did not cause a pronounced fall in temperature, a variation of two degrees only occurring during this period between the highest and lowest points. Throughout the course of the disease the temperature remained high for a considerable period, but never amounted to a hyperpyrexia. From the seventeenth day of the disease until the thirty-second day a considerable period of the twenty-four hours it was 104° F., or there about, and frequently rose to 105° F. The respirations were shallow and attended by a slight cough, and throughout the chest during the larger period of the disease there were râles of bronchitis, and from the thirtieth to the forty-fifth day râles of congestion at the base posteriorly.

The pulse was rapid and feeble, and liable to great variations on movement or exertion, the slightest excitement or other provocation. The heart-sounds were extremely feeble; in fact, inaudible throughout the entire disease. The urine contained a trace of albumin at various times, but otherwise was not unusual. The nervous symptoms amounted to a stuporous condition, continuing from the fifteenth to the fortieth day, with delirium of a muttering type. The tongue was dry and brown, and covered with sordes. The patient would not take food, or only the smallest amounts, and for a considerable period had constant vomiting, requiring food and all else, except champagne, to be withheld from the twentieth to the twenty-sixth day of the disease. The bowels were constipated throughout the entire course of the disease. Indeed, every second day an enema had to be given to provoke an evacuation.

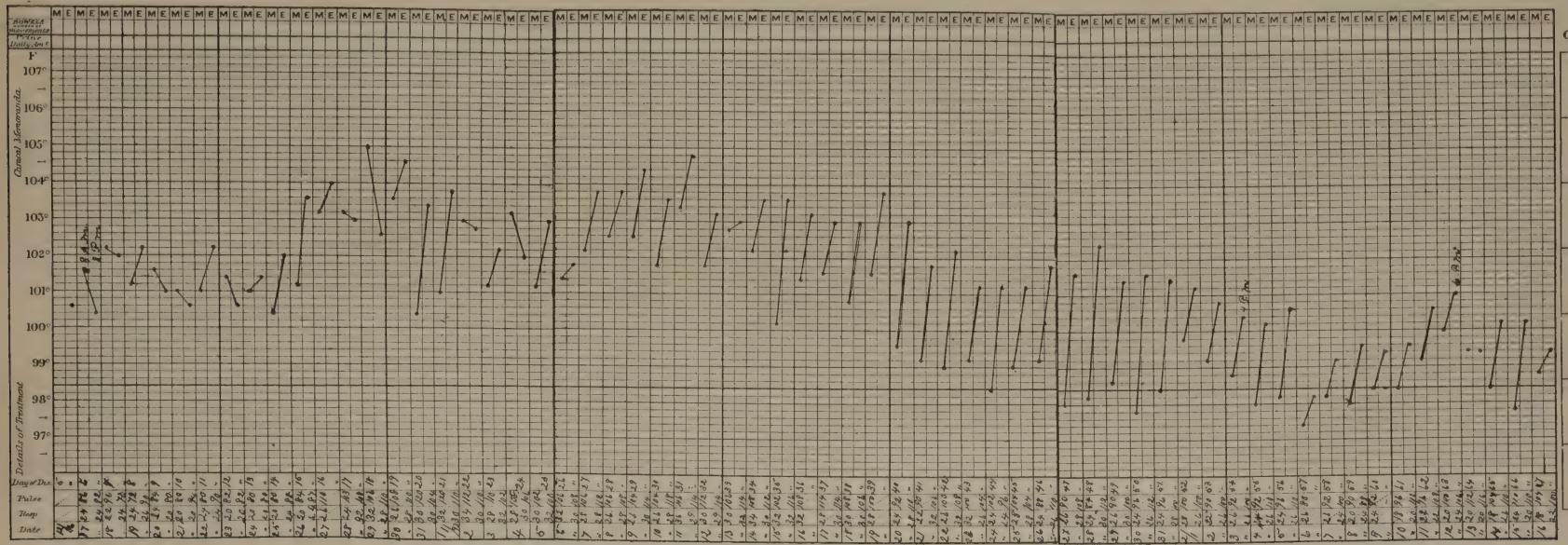
Diagnosis.—There was no doubt about the diagnosis. The specific eruption developed at the proper time and continued throughout the disease, the last spots disappearing the fifty-fifth day after the illness. The spleen was enlarged and distinctly palpable, while the hemorrhage appeared to render the diagnosis final.

Complications.—I have intimated before there were no complications. The patient was examined frequently with the object of determining a focus of suppuration or some complication on account of which the disease was so protracted. The weak heart led to the supposition that myocarditis was present, but this could not be proven.

Treatment.—Any one who is familiar with a protracted case of typhoid fever will readily appreciate at what wit's ends one is often placed to meet the varying indications that are constantly arising.

So many matters of therapeutic interest and management arose in this case, of decided interest, that I venture to present a few of them at least for your consideration. First, *diet* and *stimulants*. Milk was given for a time in the quantities usually advised, but it was soon found that the amount had to be considerably reduced. Even then it was rejected and cream substituted. Animal broths were refused by the patient. When the vomiting became pronounced the patient was fed by enema. The occurrence of the hemorrhages forbade at one time feeding by this means. The one stimulant especially relied upon, and which seemed to be the most beneficial persistently used, was *coffee*. This was given during the height of the disease to the period of defervescence. At first two tablespoonfuls could be taken, hot and without cream or sugar, every two, three, or four hours. Later, it was given in larger amounts at longer intervals. Both champagne and whiskey were used at different periods. During the time of the greatest gastric disturbance the champagne was the most acceptable. It was administered in the usual manner. I particularly wish to refer to the use of coffee, and urge its more constant use than we are accustomed to give it in acute diseases. I am quite sure that it contributed to the saving of the life of this patient, and it appeared to have a good effect in preventing vomiting.

Temperature.—Cold applications could not be given. The external use of cold or any refrigerants caused extreme depression with shock, and had to be at once discontinued. I was equally sure that any of the ordinary antipyretics could not be used without great risk. I therefore resorted to the use of *inunctions* of oil in order to reduce the temperature. It had been my custom for the past three or four years to use olive oil by inunction in cases of protracted fever, which could not be reduced by other means. The use of the oil until superseded by baths became a routine method of treatment in the medical wards of the hospital, and its benefits were observed by internes and nurses, and they took it as a matter of course in the management of the cases. I was led to its use by noting the comfort that arose from the use of external unguents, or fatty substances, in scarlet fever with high temperature. I did not expect the oil to act as a decided antipyretic. After the inunctions the temperature would fall ½° to ¾° F., or at times a full degree, but notwithstanding the slight difference the patients appeared more comfortable. They did not suffer apparently from the distressing effects of the heat, and would almost always fall into a sleep. The oil mitigated the effects of the fever, and the inunctions allayed the perturbation, and I am quite sure contributed to the nutrition, or at least in some manner prevented the extreme waste and prostration that occur in protracted pyrexia.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Use of Oxygen.—When the patient was admitted she was anemic, the red blood corpuscles numbering 3,500,000 per centimetre. After the occurrence of the hemorrhages they fell to 1,500,000, and other symptoms of anemia arose. The pulse became more frequent; the respirations more rapid; breathlessness and fainting occurred frequently, and the patient's extremities were cold and bloodless, and after exertion bluish. To militate against the serious effects of the anemia and for stimulating purposes inhalations of oxygen were employed. Inhalations were given every hour at first during the periods of greatest depression, and later at intervals of from three or four hours. The patient was so weak that gentle pressure had to be made on the oxygen bag in order to introduce it. The effects were pronounced. The blueness disappeared; a glow spread over the face, and the extremities became warm. All who observed the patient in this most trying illness were satisfied that she was much relieved and life prolonged by the employment of oxygen in this manner.

Heart Stimulants.—For the cardiac weakness digitalis was given very cautiously, but had to be discontinued early on account of the condition of the stomach. Strychnia every fourth hour by the mouth or hypodermically seemed to be of great value. The patient was extremely susceptible to the drug, and had stiffness of the jaw from a very small dose, so that it was abandoned after two or three days' administration.

Vomiting.—For the vomiting, cocaine and carbolic acid—the former in quarter-minim, the latter in quarter-grain doses,—appeared to be the most effectual. The aromatic spirits of ammonia was given almost *ad libitum.* At one period of the twenty-four hours only, when the vomiting was the most extreme, was it withheld.

Sleeplessness.—The insomnia and restlessness were extreme. There was an idiosyncrasy against opium, so that its use had to be very carefully adjudged, and in ordinary doses could not be thought of. The tincture of cannabis indica combined with deodorized tincture of opium allayed the restlessness readily. Morphine always caused vomiting and could not be given. The administration of the coffee had to be so timed that it did not cause insomnia. After considerable experimenting we found the coffee could be given in the early part of the day, and the opium and cannabis indica later. The latter combination of drugs seemed to act as a stimulant as well.

I have thus in a general way detailed the management of the case, but especially want to insist upon that which impressed all of us who observed it, that the inunctions, the use of the oxygen, and the use of coffee as food and stimulant were of such service as to warrant me to urge their use in similar cases.

The patient was completely restored to health, although unable to resume her occupation until after a prolonged period of convalescence, during which cardiac weakness was more or less permanent. There were no complications. Every organ of the body seemed to be free from disease.

I am indebted to Dr. Walter Weiser, formerly interne, and now of Springfield, Mass., for collecting the data and for most untiring devotion in watching the case.

PRIMARY CARCINOMA OF THE GALL-BLADDER.

By George Dock, M.D.,

Professor of Medicine in the University of Michigan, Ann Arbor.

The points of interest in this case are,—

(1) The early discovery of gall-stones (six and a half months before death).

(2) The positive recognition of the malignant disease at an early period.

(3) The absence of jaundice, notwithstanding extensive infiltration and complicated adhesions and distortions.

(4) The absence of ascites, though there were extensive deposits in the peritoneum.

Mrs. O., housewife, aged 47 years. Previous and family histories negative. About Christmas, 1893, patient fell, and in doing so "felt something give way" in the right side, about three inches to the right of the umbilicus. Since then there has been almost constant dull ache in the same place, with occasional shooting pain passing back to the shoulder. Has never had colicky pain. Somewhat later the patient discovered a "lump" in the locality mentioned. This has remained to the present time, without increasing in size. Aside from the symptoms named she feels very well. Has not lost weight. Appetite is good; bowels rather constipated.

Status præsens, April 10, 1894. Small, well-nourished woman; weight, 126 pounds; skin and mucous membranes normal; examination of heart and lungs negative.

The abdomen is above the level of the ribs, the panniculus very thick. Tenderness in the right hypochondrium; the rectus is very tense. Just below the angle of the ribs is a smooth oval tumor about the size of a hen's egg. It is not dull on percussion, does not change its position in respiration, and seems to be formed by the belly of the

rectus. The liver dulness extends from the upper border of the sixth rib in the nipple line to an inch below the ribs.

There are small external hemorrhoids. Gall-stones have never been looked for.

Urine clear; yellow; acid; specific gravity, 1020; no albumin; no sugar; a few leucocytes and cylindroids.

A small blister was prescribed and the patient directed to look for gall-stones.

After two more visits the abdomen became more tolerant. April 24 we were able to note: a tumor can be felt in the right hypochondrium; sensitive to deep pressure; the size cannot be distinctly made out, but seems to be as large as a small orange; the tumor descends during inspiration; can be moved rather readily; the patient is losing weight, but has less pain and feels better.

May 8, 1894. Examination under ether in consultation with Dr. Nancrede, in the University Hospital. A hard, oval tumor, four inches long and two inches broad, can be felt in the right umbilical region; the tumor is movable; descends on inspiration. By deep palpation crepitus can be felt and made audible.

The patient was advised to undergo an exploratory operation with the object of discovering, if possible, whether the symptoms came from the stones alone or, as the age suggested, whether there was a new growth, the further treatment to be based on the results of the exploration. She consented, but soon after became interested in red-clover tea and withdrew from observation.

On July 7, 1894, I was sent for and told the patient was ready for the operation. She was but slightly emaciated, pale, but not cachectic. For some time there had been attacks of vomiting at intervals of about two weeks. No gall-stones had been found.

The tumor was larger, flatter, and more uneven than before, in the same position, and still movable. In the umbilicus was a small, hard, disk-like mass, beneath the epidermis and adherent to it. A small hard nodule could also be felt in the right iliac fossa.

I at once informed the family of the uselessness of operating, stating that the disease was cancer of the gall-bladder, with secondary growths which would make futile any operation.

For some weeks there was no change in the condition. Bismuth and milk diet made the attacks of vomiting less troublesome. The tumor grew, so that by September 15 it extended downward from the edge of the liver, with which it was continuous, forming a flat oval mass about three inches wide and five long. The surface was uneven, hard; the edges smooth, as was also the edge of the liver. The tumor was dull on percussion, and continuous with the liver dulness. From

this time the tumor became smaller. As emaciation advanced small tumors could be felt near the large one, and by the end of September a long cylindrical body could be felt lying across the abdomen just below the large tumor. This was assumed to be the thickened omentum.

From this time attacks of pain were more frequent and it was necessary to use morphine, which had the beneficial effect so often seen in hopeless cases of malignant disease. By taking at first one-fourth, later one-third, of a grain at night, the patient was kept comfortable, looking after her household duties, and even going out driving, though in bed a large part of the time.

After October 15 all the tumors became smaller. The one in the umbilicus had reached a diameter of two centimetres; it eroded the epidermis and caused hemorrhage occasionally. From this time the patient was unable to take much food on account of the pain, and emaciation progressed rapidly. The skin and scleræ were never jaundiced. The urine was dark, but never contained bile coloring matter.

Death occurred from gradual loss of strength and with intense emaciation, November 25, 1894.

From the autopsy notes I extract the following: Body extremely emaciated, the fat everywhere being almost entirely absent. All the tissues and body cavities very dry.

Heart small; muscle dark-brown; valves normal. The great vessels very small.

Lungs small, anemic.

The omentum is rolled up, forming an irregular cylindrical mass six inches long, one inch wide, and half an inch thick, nodular and uneven, very hard, of a dirty white color, fibrous on section. This mass is adherent to the edge of the liver and to the underlying structures. The mesentery contains large numbers of nodules from the size of a pin-head to that of a cherry. These are all very hard, grayish white. The larger ones have crater-like depressions on one side. Similar nodules, usually not larger than a pea, are scattered over the serosa of the stomach and intestines. A larger one, one and a half centimetres in diameter, at the mesenteric attachment of the lower part of the ileum, has grown through the wall and forms the floor of a smooth shallow ulcer. The cecum is greatly distended. The ascending colon is constricted by a circular mass of new growth in the serosa, which has contracted the lumen so that a finger-tip is barely passable. The transverse colon and some coils of the small intestine are matted together under the omentum, and so firmly fixed that they cannot be separated.

The parietal peritoneum has on it numerous small nodules resembling those already described. Just above the umbilicus is a mass three centimetres in diameter and one centimetre thick, and in the umbilicus another one and a half centimetres in diameter, the outer surface of which is covered by dried blood. The round ligament is not involved, except near the liver.

The diaphragm is densely infiltrated by firm masses of new growth, smooth and white on section, in some places one centimetre thick.

The liver is small, the right lobe globular, the left lobe relatively large. On the upper surface, above the position of the gall-bladder, is a whitish induration six by eight centimetres in extent, with irregular outlines, elevated slightly above the general level. At the anterior edge of the liver this indurated mass is in intimate connection with the omental tumor already described. Deep pressure over the mass gives crepitus.

On section, the liver tissue is pale, bloodless; the acini distinct; the larger bile-ducts are dilated and their walls thickened.

The gall-bladder cannot be found in the normal position. On cutting through the liver from before backward, in the middle of the induration mentioned, a cavity the size of a walnut is opened. This is within the limits of the liver, lying in a mass, the surface of which has been described. The mass is of cartilaginous hardness. It extends into the liver substance without distinct margins. In many places strands of new growth pass out for several centimetres from the main growth, surrounding the walls of the vessels. The cavity contains twenty-eight gall-stones of the common pigment, lime, and cholesterin variety. One of these is roundish, cylindrical in shape, two centimetres in diameter, and two centimetres long; the rest together make about an equal bulk. All of them are so closely fitted together that their adjacent surfaces are quite dry. The walls of the cavity are hard, smooth in some parts, rough in others, but nowhere appearing as a normal mucous membrane. A small amount of thin, yellowish, glairy fluid, containing cholesterin plates, large granular cells, and fat granules, coats the walls of the cavity. No duct can be traced from the cavity. The cystic duct and the hepatic ducts cannot be found in the dense mass under the liver after careful dissection. The orifice of the common duct admits a probe, but its course cannot be traced, being inextricably confused in the dense mass of new growth which surrounds it. The liver does not contain any circumscribed tumors in the interior, but just under the capsule, near the altered gall-bladder, are a few small nodules with umbilicated centres. In the right lobe, between the dense mass surrounding the gall-bladder and the portal fissure, is a calculus, closely fitted in a

smooth-walled cyst. One side of the cyst is made up of new growth; the other, thin and fibrous, is sharply circumscribed from the liver tissue, from which it easily separates. The stone has the shape of a rounded triangular pyramid, measuring 3 x 3 x 2.5 centimetres. The surface is white and smooth. The stone is soft; can be cut with a razor. It is made up of a central body, one centimetre in diameter, of soft granular bilirubin and an outer layer of almost pure cholesterin. The cyst has leading into it one bile-duct two millimetres in diameter. No other pigment-masses or calculi can be found in the liver. The portal lymphatics are entirely fused with the extensive new growth.

Sections of the round ligament one centimetre from the abdominal wall show no infiltration.

The stomach is small; contains a small quantity of black watery fluid (bismuth); the mucosa thin and smooth.

The small intestine is narrow, the mucous membrane smooth, the cavity empty. The cecum and rectum contain hard, dark, fecal matter.

The spleen is small, bloodless, firm; the connective tissue prominent. The capsule is the seat of several small, hard, whitish tumors.

The kidneys are small, anemic.

The wall of the bladder is very thin; it contains a number of small whitish nodules.

The pancreas is small; contains nothing abnormal except a soft, white, circumscribed tumor one and a half centimetres in diameter near the tail. The nodule is finely reticular on section.

Microscopic examination shows the growths to be cylinder-celled carcinoma. The soft mass in the pancreas appears as an adenoma, with roundish alveoli lined by cylinder cells in a single layer, with scanty stroma. In all other parts the growth has the structure of scirrhus, varying in different parts. The wall of the gall-bladder is made of dense fibrous and fibroid tissue with few nuclei. In parts the inner surface is necrotic, either homogeneous and hyaline, with nuclei which do not stain, or else granular. Farther out is a zone of sclerotic tissue with a few alveoli, lined by cylinder cells, which here, as elsewhere, have the appearance of those lining the normal gall-bladder. Interspersed in this zone are necrotic areas of carcinoma with alveoli filled with cells, with relatively scanty stroma. These areas take no nuclear stains at all, and stain faintly with eosin. Still outside this is a zone of dense scirrhous character, with alveoli usually smaller than those in other parts. This zone passes into the liver tissue for a considerable distance, in the capsule of Glisson, which is greatly thickened thereby. The acini here are small, the outer rows of liver cells lying in the new growth. The liver cells show an excess of pigment; protoplasm and nuclei stain well.

In the mesentery the alveoli are long and oval, lying between the

bands of connective tissue, which are spread out in fan-like manner. In many of the mesenteric tumors, as in the liver, the remarkable power of contraction of the growth is clearly shown.

That the growth was primary in the gall-bladder I do not think can be questioned. The history of gradual onset, pain, and absence of jaundice, as well as the relations found post mortem, make the course clear. The only alternative could be primary cancer of a gall-duct within the liver, with early and general implication of the gall-bladder.

As to the cause of the disease itself, the case bears out the prevailing idea of the assisting action of gall-stones. The history seems to point to a change in the position of gall-stones in December, 1893, nearly a year before death. Certain it is that the stones were present more than six months before death, and although the gall-bladder was probably cancerous then, it is hardly likely, I think, that the new growth was present six months earlier than that.

It might be thought that the presence of so large a stone in the liver would weaken the idea as to the relation of calculus to cancer. This I do not think bears on the case. The stone in the liver began as a pigment calculus from stoppage. A dilatation cyst formed around it, and from the walls of the cyst cholesterin was secreted. No importance can be placed on the relative hardness of the stones, for it is most probable, as Naunyn has pointed out, that most gall-bladder stones are formed rapidly.

Although I agree with the idea expressed above that the stones antedate the cancer, I must also say that I think the question can only be positively settled by examinations of cases in which operations are made during life early in the disease.

The case illustrates the remarkably contractile power of such growths, the large tumor formed by the gall-bladder being ultimately entirely retracted, so to speak, into the liver. That in the course of all the infiltration and distortion occlusion of the ducts did not occur is an interesting fact of some clinical value. Before the section I had predicted that the growth would be largely in front of the common duct, as in a case I reported some years ago,[1] but this proved not to be the case.

The distant metastases, especially those in the bladder and the one in the umbilicus, are interesting, the latter being due to transport, and not to continuous growth, as I have once seen in a case of secondary cancer of the liver, when the growth followed the round ligament to the abdominal wall. Inclusions in the epithelial cells are rare, and do not suggest parasites.

[1] Transactions of the Philadelphia Pathological Society, Vol. XIV, p. 47.

HISTORY OF A CASE OF SUCCESSFUL IRIDECTOMY AND EXTRACTION OF LENS-CAPSULE AND LENS-DÉBRIS, WITH RECOVERY OF VISION, IN AN EYE THAT HAD BEEN CONSIDERED USELESS FOR MORE THAN TEN YEARS.[1]

By Charles A. Oliver, A.M., M.D.,

Philadelphia,

One of the Attending Surgeons to Wills Eye Hospital; one of the Ophthalmic Surgeons to the Philadelphia and Presbyterian Hospitals; Consulting Ophthalmic Surgeon to St. Agnes's and St. Timothy's Hospitals, etc.

On February 21, 1894, N. C., a 60-year-old laborer, living at Shenandoah, Pa., was sent to my clinic at Wills Eye Hospital, with the history that ten years previously the right eye had been struck with a piece of coal. Although sight was almost immediately lost, there never was any ocular pain. Several times since the accident he had consulted medical advice as to the probability of regaining the sight of this eye, but invariably had been rewarded with a negative opinion. For six months previous to his first visit, the sight of the left eye had been gradually failing until vision had sunk to counting fingers at one-sixth of a metre's distance. The vision of the right eye, obtained through a small pupillary area, amounted to the ability to see to count fingers at one-half a metre.

In the right eye there was a complete arcus senilis. The anterior chamber was deepened especially below and out with a marked iridodonesis, which was greatest in the inferior portion of the iris. The pupil was round and two millimetres in size. The upper half of the iris reacted well to light stimulus, but down and out it was bound to masses of lens and capsular matter, which extended up behind the pupillary area. Intra-ocular tension was normal and there was no ciliary tenderness. The field of light-perception, which was large, showed good projection in all of its parts.

The arcus senilis in the left eye was not so extensive as in the fellow-eye, the greatest width and the densest portion being above with but a trace below. The anterior chamber was shallow. The pupil, which was two and a half millimetres in size, was dome-shaped with the base of the dome situated down and out. With the exception of the point on the iris which was equivalent to the base of the dome, the iris responded freely and equally in all meridians to light-stimulus. The crypts in the lower part of the iris were thickened

[1] Paper read before the October, 1895, meeting of the Section on Ophthalmology of the College of Physicians of Philadelphia.

and depressed in places. The lens was swollen and semi-opaque, the opacities extending as broad radii in both the anterior and the posterior cortices. The nucleus was dense and translucent. Though the intra-ocular tension was slightly below normal, yet there was no ciliary tenderness. The field of light-perception was large and entirely free from any scotomata.

In consultation with Dr. William F. Norris, it was deemed advisable to admit the patient into the hospital.

Two days later, with the assistance of Dr. George C. Harlan, a broad iridectomy down and out was made with a bent keratome, revealing an extensive flattened mass of degenerate capsular and lens matter. This was gently grasped with a pair of fine forceps and, with but little tension, was dragged in its entirety through the corneal wound; this procedure causing the escape of but a drop or two of vitreous humor.

The conjunctival sac and lids were thoroughly cleansed, atropine was instilled, and a light protective bandage was applied. In forty-eight hours, the wound was thoroughly healed without a particle of inflammatory reaction.

Two weeks later, the fundus could be plainly seen through a few faint vitreous opacities, with a + S. 9. D. ⊂ + C. 2.50 D. ax. 180°; this correction giving a vision of $\frac{5}{3\,5}$.

The patient thus regaining an useful eye, it was decided that it would be best to wait until the cataract in the left eye became further matured and the organ free from the low-grade inflammatory action, before subjecting it to any operation. A wash of boric acid and a collyrium of sulphate of atropine (four grains) were ordered to be used locally in each eye for some months. A general alterative was given.

On April 15, 1895, more than one year after the operation, the condition and the vision of the right eye had remained unchanged, whilst the cataract in the left eye continued far from mature.

At present writing, almost six months later, the conditions remain as before.

Remarks.—The case is of interest clinically, as showing the value of a carefully-conducted examination before condemning a supposed useless organ to non-operative interference. The depth of the anterior chamber, the freedom from anterior synechia, the mobility of the upper part of the iris, the tremulous condition of the iris, the normality of intra-ocular tension, the absence of ciliary tenderness, and last, but of the greatest importance, the large, clean field of light-perception, all were favorable to operative treatment. The localized area of sequelæ of old inflammation down and out, simply meant that a broad iridectomy, including this part, would, if cleanly and neatly

made, remove with one cut of the scissors a focus of possible inflammatory reaction, besides allowing admission for the forceps to remove any capsular and lenticular *débris* that had been hidden behind.

The proof of the justice of the reasoning in this case is at once evident when it is considered that, for more than a year and a half since the operation, the patient has enjoyed an useful and self-supporting occupation while awaiting the maturity of a cataract which is still unfit for extraction and for which he originally came.

TWO CASES OF CARCINOMA OF THE PANCREAS.

By A. O. J. Kelly, A.M., M.D.,

Philadelphia,

Pathologist to St. Agnes's Hospital; Assistant to the Medical Dispensary at the Hospital of the University of Pennsylvania; Clinical Assistant in the Neurologic Department, Philadelphia Polyclinic.

It has recently been my fortune to conduct autopsies on two cases of carcinoma of the pancreas, both of which are alike interesting, because of the fact, if for no other, that in neither was the diagnosis made antemortem. The rather incomplete clinical histories are as follows:

Case I.—W. W., male, aged 39 years, a stone-cutter by occupation, was admitted to the medical wards of St. Agnes's Hospital, July 12, 1894. His mother is living and well; his father died of a stroke of apoplexy; two brothers and two sisters died from causes unknown. During childhood patient had measles, and some few years ago is said to have had an attack of apoplexy. During his youth he contracted syphilis. Four months previous to his admission to the hospital he says he had an attack similar to the present one. He was admitted to the hospital complaining of dyspnea, which at times became very much aggravated, palpitation of the heart, attacks of severe coughing, edema of the legs, anorexia, and occasional vomiting. His legs were much swollen and tender and pitted upon pressure. His lungs were normal. His heart-beat was rapid, irregular, widely diffused, and had its maximum intensity at the level of the seventh rib in the nipple line. The area of cardiac dulness extended from the second interspace to the seventh rib, and from the left nipple line to two inches to the right of the midsternal line. Auscultation at the apex revealed rapid irregular heart-beat, systolic and diastolic murmurs, the latter, as further examination demonstrated, transmitted

from the aorta. Pulsus celer. The edema of his legs continued to increase, and that of his scrotum became so great as to necessitate tapping, a quart of fluid being withdrawn towards the end of July. About this time his right arm gradually became rather markedly edematous; his left remaining normal. Towards the end of August his scrotum was again tapped; not so much fluid was withdrawn at the time of this operation, but the wound continued to discharge for some days; and the same occurred when the abdomen was punctured a few days subsequently. Towards the middle of September the edema of the legs had become excessive, as was also that of the right arm, especially below the elbow. The left arm, more particularly the hand, was occasionally slightly edematous. The edema also affected the skin of the trunk as high up as the nipples. The peritoneal cavity contained free fluid. At this time the following measurements were taken:

Around the chest at nipples		38 inches.
" " umbilicus		43½ "
" " scrotum		14¼ "
	Right.	Left.
" " biceps	10⅛ inches.	9 inches.
" " elbow	12⅞ "	8½ "
" " lower arm	13 "	9⅜ "
" " wrist	8½ "	6⅛ "
" " hand	9 "	8⅞ "
" " thigh	24 "	24⅞ "
" " knee	17 "	17¾ "
" " calf	16⅜ "	16¼ "
" " ankle	15½ "	13⅜ "
" " foot	10½ "	10½ "

The edema of the legs became so excessive as to necessitate small cutaneous punctures or slits for its relief. This operation, which was performed under antiseptic precautions and repeated at intervals, was followed by marked benefit. The patient continued in varying states of comfort; at times the edema was excessive, again it would markedly improve, as did also his general condition, especially about the beginning of this year (1895). Then followed a repetition of the old state of affairs, the edema of his legs and right arm becoming excessive. Edema returned to his left arm and increased until it was quite marked. His urine, which varied in daily quantity from eighteen ounces to two or three quarts, when he was taking diuretics, so far as the examination went, revealed no pathological changes; it contained no albumin and no casts; there is no record of it having been examined for sugar. The treatment pursued was simply directed towards the relief of his most prominent and distressing symptoms,

and in addition to the above-mentioned tappings and cutaneous punctures, consisted of various diuretics, cardiac and general stimulants. There was a progressive increase of all his symptoms until his death, which occurred May 1, 1895.

The following are the notes made at the autopsy, which was performed ten hours after death: Body of well-developed male; marked edema of all extremities, trunk, face, and neck. The edema of the right arm is more pronounced than that of the left. Panniculus adiposus edematous. On incising the peritoneum a large quantity of clear, straw-colored serum escapes. The two layers of the pleura of the right lung are firmly united in their entirety; the right lung is very edematous, but otherwise normal. The left lung and pleura show the same conditions except that the pleuritic adhesions are not quite so firm. The pericardial sac contains about twenty-five cubic centimetres of clear straw-colored serum. The heart is greatly increased in size; the left ventricle is dilated and its walls almost twice their normal thickness. The mitral orifice admits two fingers, the leaflets and chordæ tendineæ are somewhat thickened. The tricuspid orifice readily admits four fingers. The pulmonary leaflets are normal. The aortic orifice is increased in size, and the free edges of the aortic leaflets have become diminished by the growing together of the valves. The aorta is somewhat atheromatous, especially the descending portion. The liver is dense, increased in size, on section generally yellowish with reddish-brown spots indicating centre of acini. The gall-bladder is much decreased in size and contains a few gall-stones. The spleen is enlarged, capsule thickened, organ dense; the pulp is dark brownish-red on section, trabecula increased. The kidneys are slightly enlarged, dense, on section dark reddish-brown, cortex and medulla apparently otherwise normal. The stomach, the pylorus, the duodenum, the appendix, the cecum, the bladder, the large and small intestine are normal, except for excessive distention with gas of the transverse colon. The pancreas is somewhat increased in size and the entire organ changed into a firm solid tumor mass. The head seems to be especially the seat of tumor formation; here and there in the body and towards the tail are appearances which suggested the normal pancreas; the cut surface is whitish-gray, moist. The pancreatic duct is patulous. The retroperitoneal glands, the inguinal glands, the bronchial glands, the cervical glands, and the axillary glands are all much enlarged. The axillary glands of the right side are particularly the seat of enlargement, as are also the cervical glands of the same side, and encroach upon the lumen of the axillary vein.

Pathological Diagnosis.—Primary carcinoma of the pancreas

metastasis throughout the lymphatic system; aortic and tricuspid, insufficiency; atheroma of aorta; cyanotic induration of liver, spleen, and kidneys; chronic pleuritis.

Unfortunately, the specimen was poorly cared for, and the necessarily unsatisfactory sections for microscopical study, which I was later enabled to make, precluded any possibility of detailing any of the minutiæ, but showed the carcinoma to be of the scirrhous variety.

Case II.—Mrs. M., aged 57 years; native of Ireland; housekeeper by occupation; was seen in private practice. The family history of the patient is negative. Of interest is it that her mother, after having been jaundiced for twenty weeks, recovered after the passage of a "stone." The patient presented herself March 8, 1895, complaining of jaundice. She stated that she had been feeling unwell for several weeks, complaining of general malaise, loss of appetite, and occasional vomiting.

The jaundice, which the patient stated was of but a few days' duration, was universal and very marked. There were no symptoms referable to the thoracic viscera, examination of which was negative. Examination showed the entire abdomen to be enlarged, but especially the upper right hand portion. The liver dulness extended in the mammillary line from the sixth rib to a full hand's breadth below the margin of the ribs, being somewhat lower in this line than elsewhere. Palpation revealed a mass continuous with the right border of the liver. This mass was about the size of a goose-egg, was apparently somewhat roughened, and rather soft. It moved with respiration and was evidently attached to the liver. No other distinct nodules could be made out. The other organs were apparently normal. A diagnosis was made of cancer of the liver or gall-bladder, or both, and this opinion was shared by other physicians who saw the case. The jaundice, with persistent itch, bile-stained urine, and ashy-colored stools, remained unchanged, and emaciation, which was evident before, became more marked and progressive. The loss of appetite increased to absolute distaste for food. The mass, however, did not increase in size nor in any way change its characteristics, which fact led to a surgeon of eminence being called in consultation, having in view an exploratory operation as a relief for possible impacted gall-stones, though there was no evidence of the same except the persistent icterus. The surgeon, however, also viewed the case as one of hepatic carcinoma and declined to operate. Except the presence of bile, examination of the urine revealed no abnormalities. The subsequent history of the case is that of progressive increase in all her symptoms, with the single exception of the abdominal mass, which continued the same size until

her death, which occurred June 8, 1895, the diagnosis remaining unchanged.

The autopsy was held twenty-four hours after death. I was permitted to examine the abdomen only. The body was that of a small, markedly emaciated, deeply icteric female. Panniculus adiposus almost wanting. The abdominal cavity contained no fluid. The liver was enlarged, elastic, on section deeply green in color; the bile-ducts were much dilated and contained bile. The gall-bladder was about twice its natural size, soft and elastic to the touch. On section it was found to contain about an ounce of light-yellowish, somewhat inspissated bile, and about 150 gall-stones about the size of small peas. The pancreas was diminished somewhat in size, of very firm consistence; on section it was whitish-gray and yellowish; nowhere was the normal pancreatic structure demonstrable,—the entire organ being converted into this tumor mass. The pancreatic duct was not patulous. The gastro-hepatic omentum was infiltrated. The common bile-duct was obliterated. That portion of the gall-bladder nearest the cystic duct was yellowish-white in appearance, rather suggestive of carcinomatous change. The spleen was bile-stained, otherwise normal. The kidneys were enlarged and bile-stained. The stomach, duodenum, small and large intestine, bladder, and genital organs were apparently normal. The retroperitoneal glands were not enlarged.

The pathological diagnosis was carcinoma of the pancreas, with consecutive closure of the ductus communis choledochus,—cholelithiasis.

I was not permitted to retain the specimen for microscopical examination.

From our mistakes in diagnosis, and from our failure to make diagnoses, we are ofttimes enabled to profit more than from those cases in which our surmises are confirmed by post-mortem examination. I venture the assertion that most of our delinquencies in matters of diagnosis are traceable to incompleteness of examination, and the question suggests itself, Was the diagnosis of carcinoma of the pancreas possible in either of the cases here reported? In Case I, I think not. There were no symptoms whatever to direct one's attention to the pancreas, and because of the fatty and edematous abdominal walls, and the ascites, it would have been impossible to palpate the organ. The early development of edema of the right arm and the later gradual development of edema of the left arm, seemingly independent of the edema of the legs, manifestly due to the condition of his heart, might have suggested first right-sided, later left-sided metastasis to the axillary and cervical glands from a common source; but how unlikely! The detection of fatty stools or of sugar in the

urine might have directed one's attention to the pancreas, but even with very marked disease of the pancreas one or both of these symptoms may be absent. While the occurrence of fatty stools usually presupposes the absence in the alimentary canal of the pancreatic secretion, on the other hand, the bile alone seems capable at times of causing full absorption of the fat; and thus with a markedly diseased pancreas, fatty stools may be absent. The interest which is attached to pancreatic diabetes is only intensified by the fact of the occurrence of diffuse carcinoma of the pancreas without the presence of sugar in the urine; quite a number of such cases having been reported. A possible explanation of this fact is sought in the supposition that the cancer cells being derived as they are from the pancreatic cells, while they have lost all secretory function are still capable of performing their antidiabetic action. In this case I am certain the diagnosis could not have been made.

In Case II, a careful examination of the stools and the detection of quantities of fat therein might have brought the diagnosis of carcinoma of the pancreas among the possibilities. The tumor could not have been felt because of the enlarged liver and distended gall-bladder, but the deep jaundice, with progressive emaciation and fatty and greasy stools, in conjunction with the fact that the palpated tumor —the distended gall-bladder—did not enlarge nor materially change in any of its characteristics, might have rendered the diagnosis of carcinoma of the pancreas somewhat probable. But even with completeness of examination, inquiry into the occurrence of fatty stools and the presence of sugar in the urine, among other investigations, it will always require great diagnostic acumen to distinguish carcinoma of the pancreas from carcinoma of other organs in the same region,—more particularly of the gall-bladder or of the pylorus with involvement of the glands in the hilus of the liver. The exclusion of the one or the other by the absence of the symptoms pertaining to it, of course, renders the other more probable, and while I think in such cases the question of carcinoma of the pancreas should always be considered, diagnosing it will at best be a hazard.

AN ESSAY ON CYSTITIS.[1]

By James J. Walsh.[2]

Introductory.

Cystitis is, according to the derivation of the word, an inflammation of the bladder. It is used in reference to inflammatory processes that affect especially the mucous coat; the other coats being, as a rule, protected by their position from attacks of inflammation except by extension from the interior of the bladder, and this is very rare. As is the case with inflammations generally it is seen in two forms, acute and chronic cystitis. Acute cystitis is the frank reaction of the mucous membrane of the bladder against the presence of an irritant. It is essentially a conservative process that is calculated to protect the system from invasion by noxious material. It has two forms according to the character of the irritant against which the reaction occurs. When the irritant is merely a chemical substance, catarrhal cystitis ensues,—that is, an over-secretion of the cells lining the bladder is induced, and mucus is thrown out by nature as a protective for the irritated epithelium as in the case of other mucous membranes. If nature's self-protective effort is successful, the irritant is gotten rid of after a time; the reason for it being removed, the hypersecretion ceases and the vesical mucous membrane returns to its normal state. If it is unsuccessful, the desquamation of the epithelial cells and their state of lowered vitality make the bladder walls an easy prey to micro-organisms that in one way or another find a lurking-place in the bladder; and the second form of cystitis, suppurative cystitis, ensues.

Suppurative cystitis may also be primary, and be due to an injury of the bladder walls that have become infected by micro-organisms present at the time of the traumatism, or that get into the bladder before it has healed.

[1] Illustrated by a clinical study of cases from the clinics and ward classes of the year at the University Hospital, and in the Dispensary for Genito-Urinary Diseases, and by some experiments on absorption from the bladder and the urethra.

[2] For the review of the recent literature of cystitis in the essay, the writer must acknowledge his obligations to the very complete files of medical periodical literature at the College of Physicians and to Dr. Richard C. Norris, for an introduction that gave permission to use the magnificent library.

Thanks are returned to Professor White for ideas and suggestions with regard to etiology, and to Dr. Kirby for information as to cases. Very special thanks are due to Dr. Christian for invariable courtesy in the dispensary, and for valuable hints which he has at all times given. This must include also Dr. Furness, who for a time supplied Dr. Christian's place while he was ill. Thanks are due to Professor Penrose for permission to consult his case-book for details of cases in his service, and to Dr. Goodell for suggestions in that line.

The American Text-Book, and Professor White's and Martin's articles in Hare's System of Therapeutics have been freely used. The experiments quoted were done in connection with my brother, Joseph P. Walsh, in the Laboratory of Physiology of the University.

Chronic cystitis is either a later stage of acute cystitis, the franker inflammatory process having given place to a slower one, as the result of nature's exudative effort to protect herself from the products of micro-organismal activity; or it is the consequence of long-continued irritation, not necessarily of a septic character. The presence of a stone, for instance, usually determines the existence of a chronic cystitis. Hypertrophy of the prostate or stricture of the urethra, or atony of the bladder walls from spinal affections act in the same way. These are, however, only the predisposing causes, and what factor that is common to them all, that causes the chronic inflammation of the vesical mucous membrane, the authorities are not agreed.

Cystitis used to be and is yet a much-abused term. As Finger[1] says, "It used to be considered one of the most frequent complications of gonorrhea, and is yet by some writers. The diagnosis of gonorrheal cystitis is still frequently made, but very often incorrectly. Under this diagnosis are included three processes that of late we have learned to differentiate. They are:

"(1) Acute posterior urethritis,—that is, inflammation of the membranous and prostatic portions of the urethra, limited by the internal sphincter, and therefore leaving the bladder unaffected.

"(2) Genuine cystitis, either a total or partial inflammation of the vesical mucous membrane, and which usually confines itself to the internal orifice of the urethra, or has its seat in the fundus.

"(3) Acute posterior urethritis, with inflammation of the bladder limited to the internal orifice of the urethra, and to the trigone and bas fond of the bladder."

It was proposed then to study in the cases of the year, and the recent literature of the subject, the following points:

(1) The etiology of acute cystitis, and its relations to posterior urethritis, and some allied conditions that are usually diagnosed and treated even yet by the ordinary practitioner as cystitis.

(2) Chronic cystitis, the predisposing and exciting factors in its etiology, and that interesting sequela, kidney-disease, by ascending infection.

(3) Some points in the physiology of the urethra and bladder that throw light on pathological processes in these organs.

Etiology.

The etiology of acute cystitis is comparatively simple. When catarrhal, it is due to the presence of a simple, non-infectious irritant;

[1] Die Blennorrhöe der Sexualorgane und ihre Complicationen, Dritte Auflage, Wien und Leipzig, 93. Von Dr. Ernest Finger.

when suppurative, infection has followed traumatism or lowered vitality from long-continued irritation.

Guyon[1] and his disciples in France found that tying the penis of a dog, and so causing artificial retention of urine and distention of the bladder, led to a catarrhal cystitis in which a large amount of mucus was found in the urine for some days, but which gradually disappeared without any further symptoms.

The introduction of various pathogenic micro-organisms into the bladder gave no result under the ordinary conditions of perfect health. The bacteria were passed with the urine, and no pathological change was induced. When artificial retention of urine for six to eight hours was added as a condition by ligature of the penis, then suppurative cystitis and all its train of symptoms ensued. The tubercle bacillus required a much longer time to produce any effect than the ordinary pyogenic bacteria, a retention of twelve hours at least being necessary for its action upon the vesical mucous membrane.

The resistance of the healthy vesical mucous membrane to the invasion of bacteria is thus seen to be very marked. The squamous, transitional epithelium that lines it seems to be nature's favorite means for protecting herself where mucous surfaces are more or less liable to exposure from infection. In the mouth it forms an excellent safeguard, for, though the upper digestive and respiratory passages are nearly always the habitat of many and varied forms of pathogenic bacteria (if we can trust the bacteriological report of cultures), only comparatively rarely, however, are nature's barriers passed and disease set up. This takes place only when abrasions or local inflammatory processes or serious constitutional weakness have lowered the resistive vitality of the buccal epithelial cells. The same conditions hold for the bladder, only that the vesical mucous membrane seems still more resistant, and the absence of the rich plexus of lymphatics that exists in the mouth and nose makes it even less liable to allow constitutional contamination. The bladder is liable to be the recipient of bacteria from three sources:

(1) From the urethra, whence they find their way back either by means of injections or the use of the catheter. For no matter how sterile the catheter when introduced, if the urethra normally or at least almost constantly contains pathogenic bacteria, the bladder contents become inevitably infected by catheterization. Even in women, whose shorter urethræ give a much less favorable culture-ground for micro-organisms, Gawronsky[2] found in the examination of sixty-two patients, with absolutely no symptoms of urethral or cystic disease,

[1] Annales des Maladies Genito-Urinaires, Series of Articles, 1892, 1893, and 1894.
[2] Münchener medicinische Wochenschrift, March 13, 1894, p. 204.

pathogenic bacteria in the urethræ of fifteen cases. Three of these gave cultures of streptococcus pyogenes; eight of staphylococcus pyogenes aureus; one staphylococcus pyogenes albus; and two of the bacterium coli commune.

Rovsing[1] found out of fifteen male urethræ examined only two sterile. Out of twenty-five cases of cystitis, Schnitzler[2] attributed the cause in thirteen cases to catheteral infection, though in all the catheter had been properly sterilized before introduction. Hofmeister[3] says, after a review of the literature of the subject, that it has not been decided yet whether or not the bladder in health contains pathogenic micro-organisms, but the urethra is certainly rich in them.

The second mode of entrance for bacteria to the bladder is through the ureter and kidney from the blood. Like the somewhat analogous case of the passage of micro-organisms from the maternal blood through the placenta to the fetus, this has been a much-discussed question. But like that, too, so much evidence has been collecting of late of the passage of even pathogenic bacteria through the healthy kidney without any inflammatory reaction ensuing, that now it seems scarcely possible to doubt the fact.

Enriquez[4] found the urine of eleven subjects perfectly healthy so far as any clinical evidence of disease was apparent; in seven instances sterile, but in three cases there were staphylococci, and in one case non-pathogenic micrococcus. In two of the cases in which staphylococci were found, local suppurative processes, due to pyogenic micro-organisms, had existed shortly before; in one case a felon, in the other an empyema. Enriquez concludes, then, that as there were no casts, no epithelial cells, and no albumin in the urine in these cases, that bacteria can pass from the blood through a healthy kidney, and so find their way into the bladder. In order to be sure that these bacteria did not come from the urethra, though every precaution had been taken in the observations to obviate this source of error, Enriquez next examined the urine of five recently dead subjects. In three cases it was sterile, but in two he again found staphylococci. Some recent observations[5] seem to show, however, that immediately before death, and in the midst of the lowered state of vitality that exists during the agneic period, micro-organisms, that at various points of the body were doing no particular harm, get into the blood-stream and are carried to different organs, where they find a lodgement and are a source of error in bacteriological investigations post mortem. The

[1] Quoted in Jahresbericht for 1890.
[2] Zur Ætiologie der Cystitis, Centralblatt f. Chirurgie, 1893, No. 7, p. 149.
[3] Correspondenzblatt f. Schweiz Aerzte, 1893.
[4] Transac. de la Société de Biologie, XI, 1891.
[5] Archives de Médecine experimentale et d'Anatomie pathologique, January, 1895.

occurrence of something like this might help to explain the presence of staphylococci in the urine, but it would seem more probable that they found their way through the kidney even in health.

A series of observations by Enriquez on dogs were confirmatory of this conclusion; for in every case where the urine contained micro-organisms the blood gave cultures of the same bacteria.

Bazy,[1] in a series of articles in *Annales des Maladies des Organes Genito-Urinaires* for 1892 and 1893, and in the report noted below, has attributed the cystitis that occurs in connection with rheumatism, gout, la grippe, and "colds" to a descending infection; micro-organisms from the blood (after excretion by the kidneys) finding a nidus for growth in a weakened bladder. He quotes a series of cases of cystitis occurring after local suppurative processes of various kinds, whose foci were often distant from the bladder, as alveolar abscess, bronchitis, preputial abscess, etc. In all of his cases there was, in his own succinct and graphic phrase, "No urethral past."

Finally, the third mode of entrance for bacteria into the bladder is from surrounding structures and the pelvic and abdominal organs. This method of invasion has been admitted as possible for some time, but its importance as an etiological factor in cystitis has only come to be acknowledged with the recent rapid advance in bacteriology.

From any of the organs in the pelvis, or from the connective tissue, the micro-organisms may find a way into the bladder. In the female this has been demonstrated very clearly. Reymond[2] reports two cases in which, with scarcely any uterine symptoms beyond a certain amount of leucorrhea, there was pronounced cystitis. Cultures showed that the micro-organisms in bladder and uterus were the same. All treatment of the bladder proved futile, but curettage of the uterus caused the speedy disappearance of the cystitis. In seven other cases cure of intractable chronic cystitis followed the removal of diseased organs from the pelvis. In confirmation of this, Reymond carried out some experiments[3] on dogs, and found that bacteria introduced into the pelvis outside the walls of the bladder, even when outside the peritoneal coat, gave rise to a cystitis, if by forced retention of the urine for some hours by ligation of the penis, they were retained in the bladder long enough to produce their pathological effect.

Wreden[4] found that any injury of the intestinal epithelium in the rectum at the level of the prostate or higher up has a cystitis for

[1] Cystites par Infection descendante, Bulletins et Memoires de la Société medicale des Hôpitaux de Paris, Série III, No. 11, 1895.

[2] Annales des Maladies des Organes Genito-Urinaires, April, 1893, Cystite de l'Infection atravers les Parois vesicales.

[3] Annales des Maladies des Organes Genito-Urinaires, May, 1893.

[4] Centralblatt für Chirurgie, No. 27, 1893.

result. The kind of cystitis and its course depends entirely on the degree of injury of the rectal mucous membrane, and the kind of irritant that finds its way into the bladder through this avenue. In the experimental cases, intestinal micro-organisms, or those that had been intentionally introduced into the rectum, were found in the bladder, and gave rise to cystitis. Injuries of the rectal epithelium and the introduction of oily substances into the rectum showed on examination of the urine afterwards the presence of the oily substance in the bladder. These experiments were all the more interesting from the fact that all recent bacteriological work as to the exciting cause of cystitis shows in nearly every case the presence of bacterium coli commune in the urine.

Huber[1] says that the *rôle* of the bacterium coli commune is not absolutely settled as yet with regard to cystitis, but that it is found in nearly all cases, and in some in pure cultures. Krögius found in twenty-two cases of infection of the urinary tract[2] (nearly all of them were complicated by cystitis) the bacterium coli commune sixteen times. Its presence produced a reaction in the urine that gave it a peculiar smell that to him became, after a while, recognizable. Barlow[3] found in seven cases of cystitis five times the bacterium coli commune, in two cases staphylococci. He considers retention of urine and ammoniacal fermentation only contributory etiological factors, and intestinal bacteria the real cause.

Such distinguished authorities[4] as Doyen, Clado, Hallé, Albarran, Rovsing, Morelle, Denys, and Schnitzler, mostly from personal observation and experiment, have adopted the conclusion that the majority of cystitis cases have for their exciting cause the presence of intestinal bacteria, and especially the bacterium coli commune.

Discussion of Cases.

Notwithstanding the frequency with which bacteria must get into the bladder by one of these three ways, cystitis is a very infrequent affection, and occurs even more rarely than used to be thought. But one case of acute cystitis has been under treatment at the dispensary during the year.

Case I.—Mc——, patient in whom a severe attack of specific anterior urethritis was followed after three weeks by severe posterior urethritis, during the course of which prostatitis and epididymitis, and even some vesiculitis that could be demonstrated by the tender-

[1] Virchow's Archives, Bd. cxxxiv, 1893.
[2] La Cellule, 1891.
[3] Ætiologie prophylaxis und Behandlung der Cystitis, Archiv f. Dermatologie und Syphilis, 1893.
[4] Quoted in Fortschritte der Medicin, 1894; La Cellule, 1891.

ness and doughy enlargement of the seminal vesicle on the left, all in turn developed. The occurrence of the complications and their severity was probably due to his generally debilitated condition. Finally, the frequent and imperative urination with tenesmus were accompanied by suprapubic tenderness and pain, and it became evident that the trigone and bas fond of the bladder were involved. Under rest, diuretics and careful attention to the general health, the cystitis gradually subsided. It has been the custom to attribute cystitis developing in this way to the action of the gonococcus. Dumesnil's[1] observations seem to show that so-called gonorrheal cystitis is not due to the gonococcus. First, because careful examination of the bladder and ureters of a woman who died from what was clinically called gonorrheal cystitis, failed to show gonococci, though they were plentiful in the urethra. Second, because pure cultures of the gonococcus never make urine ammoniacal, and this is a constant sequel of so-called gonorrheal cystitis. He concludes, therefore, that the cystitis is due to a mixed infection. This view would seem to be supported by the failure of infection of the bladder in the cases that follow.

A number of interesting cases of posterior urethritis showed how severe and lasting may be inflammation affecting the portions of the urethra lying closest to the bladder without leading to involvement of that viscus.

Case II.—B.——. Specific urethritis some years ago followed by complications. Now persistent tenderness in the posterior urethra and perineum, and frequent urination that after any excess becomes imperative. Ultzmann's two-glass-test, after irrigation of the anterior urethra, gave shreds in the first portion passed, none in the last. No cystitis, according to the test, and there would be judged to be none from the absence of suprapubic tenderness, decided vesical tenesmus, and other clinical symptoms. Examination with the urethroscope showed extensive inflammation of the posterior urethra, involving even the veru montanum. There does not seem to have been any vesical involvement at any time, judging from the history, and there certainly is none now. Yet not long before coming to the dispensary, the patient had been submitted to a course of instrumentation for dilatation of supposed soft stricture of the deep urethra.

The comparatively frequent involvement of the posterior urethra just about the subsidence of an attack of anterior urethritis, while a persistent chronic inflammation of the posterior urethra extremely seldom goes the step farther back to produce cystitis, does not seem to be altogether satisfactorily explained. The writer suggests an

[1] Virchow's Archives, 1891, Bd. cxxvi.

idea that he supposes has been often advanced before, but that he has not seen in print, and that seems to aid in the elucidation of the question. While the lymphatics of the urethra anterior and posterior are continuous, they are not connected with the lymphatics of the bladder at the vesical neck. The vesical lymphatics arise at the summit, according to Sappey,[1] and run down to the neck of the bladder, "just at the orifice of the urethra, they curve back to the right and left and go on to terminate in the glands situated below the external iliac vessels." Gonococci, with no motility of their own, depend on the movement of the fluids of the part for their spread into surrounding tissues. As soon as they gain an entrance into the urethra, their irritative presence sets up chemotaxis, causes the migration of a number of white blood-corpuscles into their neighborhood that for a time effectually walls them off more or less perfectly according to the thoroughness of the reaction of the individual tissues. Normally, the inflammation they set up should end here. It frequently does not, because when nature withdraws her protecting wall of lymph, to allow lymphatic circulation as before, the gonococci are still actively virulent, so there is set up posterior urethritis; but this never spreads in this way to the bladder from want of continuity of the two lymphatic systems. When cystitis ensues after urethritis, it is due very probably to the carrying back of micro-organisms by instruments not necessarily unclean or septic, but that pick up the infectious flora of the urethra on the way, or by the fluids that injected into the urethra find their way into the bladder. Even when in the bladder, they will not set up an inflammatory process unless there is some lesion of the bladder walls, or some lack of vitality on the part of the vesical epithelium, to give them a favorable nidus for growth. A number of cases have illustrated this during the year. A fair sample is this,—

Case III.—Pullman-car porter. Urethritis ten years ago, followed by posterior urethritis and complications. Told he had stricture, and for several years passed every day a No. 16 nickel-plated sound. Examination with a bulbous bougie shows a stricture calibre 22, about four inches back, granular in character. Never has had any symptoms except feebleness of stream on urination and an uneasy feeling afterwards. Here is a man who has doubtless been carrying into his bladder from his urethra, day after day, pathogenic microbes; but the resistive vitality of the vesical epithelium has been sufficient to protect it.

Case IV.—F.——. Urethritis six years ago, followed by poste-

[1] Description et Iconographie des Vaisseaux lymphatiques, Paris, 1886.

rior urethritis and epididymitis. Now has some discharge at defecation, some tenderness of prostate, some pain at the end of penis, dribbling at end of urination, and rather frequent and imperative micturition. Has been treated for cystitis by a number of regulars, and a distinguished homeopath. Urine by the heat and nitric-acid tests shows an abundance of phosphates. Sounding for stone, negative. He has been treated by deep injections and the passage of instruments a number of times, yet there seems to be clinically no involvement of the bladder. Here is a man whose general health is not of the very best, yet his bladder has for years withstood without involvement the contiguity of the inflammatory process, and the presence of micro-organisms that must have been frequently carried into it by injections and passage of sounds; while at the same time it is subject to the constant irritation of the presence of phosphates in the urine. Even where posterior urethritis has continued for years to be a source of trouble, and officious treatment by injection, and instrumentation has been frequent and prolonged, the vesical epithelium of a healthy individual will remain unattacked if its nutritive processes are uninterfered with.

Case V.—German farmer of one of the suburbs. Specific urethritis twenty-two years ago, followed, according to the history, by symptoms of posterior urethritis and some complications of it. Some urethral symptoms ever since. Uneasiness in perineum after urination, some prostatic discharge at defecation. Urination rather frequent and imperative. At times, meatus glued together but not often, the frequent passage of urine doubtless keeping the canal clear of discharge. Has been treated off and on for these twenty-two years by internal and local remedies, by deep injections and instrumentation. Urine by Ultzmann's test shows shreds in the first urine passed after anterior irrigation, none in the second. Passage of a bulbous bougie shows tenderness in the posterior urethra which is confirmed on examination per rectum, but no stricture. He says that his last doctor passed a No. 32 sound. Ultzmann's test and the absence of shreds in the last urine passed show that after twenty-two years of meddlesome treatment, often doubtless without aseptic precautions, there is no involvement of the bladder.

Chronic Cystitis.

Chronic cystitis, as said before, always develops as a sequela of acute cystitis, or as the result of long-continued irritation of the bladder or chronic obstruction to the passage of urine. Up to within a few years it was considered to be a sufficient explanation of its etiology to say that these morbid conditions were the causes of the cystitis.

They are certainly predisposing causes, but of themselves alone do not fully explain its origin.

Rovsing,[1] in a work in Danish that attracted a great deal of attention, attributed the chronic inflammation of the bladder walls to the constant presence of irritating urine that had undergone ammoniacal fermentation. The ammoniacal fermentation, according to him, was produced by a number of micro-organisms; some of them pathogenic, some non-pathogenic, that had the power of changing urea into ammonium carbonate, and setting ammonia free. Outside the body the ammoniacal fermentation has usually been attributed to the presence of the micrococcus ureæ, though other schizomycetes have been thought to have a supplementary action.

Rovsing attributed the presence of the micro-organisms in the bladder to the use of the catheter. Of twenty-nine cases of cystitis examined and reported in his monograph, twenty had been catheterized. The catheter had been thoroughly sterilized, but had carried back from the urethra urethral flora, in which the mucous membrane of that canal is, according to him, particularly rich. He tested with careful precautions the urethræ of thirty perfectly healthy persons, of whom fifteen were men, ten were women, and five were boys. In only eight of the tests was he unable to demonstrate the presence of micro-organisms, and four out of the eight sterile urethræ were in women, where the shorter canal does not furnish so extensive or favorable a culture ground for microscopic flora.

Dr. Johann Müller,[2] in the study of the etiology of cystitis, found —in contradiction to Rovsing's opinion—that the ammoniacal urine was a factor in the production of cystitis, first, that the urine in cystitis cases is not always ammoniacal; on the contrary, according to the records of the medical clinic at Würtzburg, an acid reaction was found in cystitis cases in 73.6 per cent. of the cases. An alkaline reaction in but 15.7 per cent. The urine neutral in 5.3 per cent., and in 5.4 per cent. no reaction taken. Even in the cases where the urine was alkaline, it was not always due to the excess of ammonia present, but at times to other abnormalities of composition. Secondly, he found experimentally that the injection of urine made ammoniacal by the addition of ammonia, did not injure animal bladders when retained for six to eight hours unless it were added in such excess as can never by any chance be reached naturally. His conclusion is that the pathogenic bacteria of cystitis do not cause ammoniacal urine, and that the presence of ammoniacal urine in

[1] Ihre Ætiologie, Pathogenie, und Behandlung, translated from the Danish, Berlin, 1890.
[2] Zur Ætiologie der Cystitis, Virchow's Archives, Bd. CXXIX, 192.

cystitis cases is but an accompanying condition and not an etiological factor in the disease.

It would seem, however, that the almost constant presence of bacteria in the bladder (we have spoken of the different modes of entrance possible for them under acute cystitis), taken together with the constant irritation of a foreign body or a degenerated condition of the vesical epithelium incident to the retention of urine, and the over-distention of the mucous membrane, would be sufficient to account for the chronic cystitis in all cases where it originates. Klein[1] states that the shape of the cells of the stratified transitional epithelium of the bladder varies greatly, and their stratification is distinctly modified according to the state of expansion of the bladder. This constant variation from what nature intended in the shape and position of the cells cannot but interfere with their nutrition, and so lessen their vitality, and consequently their power to resist microbic invasion. It probably is not the pathogenic micro-organisms that cause the ammoniacal fermentation of the urine present in chronic cystitis, but those saprophytic microbes whose presence in the atmosphere constantly sets up a similar process in urine exposed to the air. These are usually introduced on unclean instruments. The history of such cases is usually about that of the first case operated on in the clinics during the year for hypertrophy of the prostate.

Case VI.—Patient aged 67 years. Prostate enlarged to twice its natural size; stream of urine feeble, falling at patient's feet. Urination frequent, every hour during the day; four or five times at night; notwithstanding this, there is always from two and a half to three ounces of residual urine containing considerable mucus, and of a distinctly ammoniacal smell. For some time, residual urine has been withdrawn twice a day with a catheter, but gradually this is becoming more and more painful and catheterism is imminent. Here the source of the saprophytic micro-organisms is evidently the instrument introduced. The pathogenic organisms find an entrance in the same way and gain a foothold from the irritated state of the bladder. No ordinary person can be taught the absolute importance of surgical cleanliness, and of all the precautions necessary to secure it, especially with a soft instrument, such as they must usually be advised to use. In this case, relief of the source of irritation by atrophy of the prostate after castration led to the cure of the cystitis.

The introduction of instruments even under unfavorable cir-

[1] Histology, Philadelphia, 1892.

cumstances will not always produce cystitis and ammoniacal urine, especially where the patient's general health gives his tissues high resistive vitality. A good illustration of this is the following case:

Case VII.—D., a Norwegian sailor, aged 62 years, prostate once and a half its normal size. Frequent urination night and day. About two ounces of residual urine. This is the abstract of his history when he presented himself at the Genito-Urinary Dispensary in 1885. He was then advised to empty his bladder by means of a catheter twice a day, and to report occasionally. Examination at the ward class this year showed no further enlargement of prostate, no increase of symptoms, and urine clear without ammoniacal odor. For ten years the passage of an instrument twice each day, that was surely often anything but aseptic, though he was given very careful directions, and that has certainly been carrying back urethral flora in profusion, has not resulted in cystitis. The wonderful vital tissue resistance of the hale and hearty old sailor has protected him, up to this time, though, he is now 72 years old.

A lithotrity case in Professor White's service illustrated the possibility of chronic cystitis without instrumentation.

Case VIII.—Patient aged 45 years. Has been passing water frequently, nearly every half hour during the day, and has to rise four or five times at night. First had symptoms five years ago. Has been treated by internal medication, but no instrumentation. Urine contains mucus, has an ammoniacal odor, and is sometimes followed by hematuria. Examination by the sound showed the existence of a stone in the bladder. This was removed by lithotrity, and the symptoms immediately began to clear. In this case, with an undistended bladder, no passage of instruments, the etiology of the cystitis would seem to be a descending infection from the kidneys. The bacteria that found their way through the kidneys not passing out as usual from the bladder, but finding an excellent culture ground in the surfaces of the irritated vesical epithelium from which blood was oozing.

Where the bladder is continuously over-distended, its close relations to the intestines under strained conditions make it liable to contract adhesions to them, and through the lymph-channels of these, pathogenic and saprophytic micro-organisms find their way into the bladder. They are retained there for hours, and so with Guyon's observations on the retention of urine, supplementing Wreden's experiments on the passage of bacteria from intestines to bladder, we can understand the origin of cystitis in cases of paralysis from spinal or nervous disorders. A very interesting case in illus-

tration of this occurred in Professor White's and Wood's clinics during the year.

Case IX.—Patient of 28 years, prominent tumor in the left inguinal region that has been stationary for some time. First noticed last spring. Before that, the patient was treated for years for sciatica. On the buttocks there are some ulcerated spots that have been very intractable to treatment. He comes with the history of incontinence of urine. Professor White's rule for tumors low down in the abdominal wall is to catheterize, and so exclude a distended bladder before making any diagnosis. The catheter in this case brought away twenty-five ounces of urine, and practically settled the diagnosis of the case. The incontinence was from retention due to spinal paralysis and loss of vesical reflexes. The ulcers on the buttocks are trophoneuroses. The urine showed signs of a cystitis, not very severe, and had a slight ammoniacal odor. The pathogenic and saprophytic micro-organisms that caused these can be easily concluded to have come from the intestines with which the greatly over-distended bladder had been for so long in intimate relation.

Where there is good resistive vitality in the tissues, neither the hyperdistention of the bladder for a long period, nor the introduction of unclean instruments will set up cystitis or only a mild grade of it. Two cases are good illustrations.

Case X.—Boy of 6 to 8 years. School-boy. Three weeks ago the mother noticed constant dribbling of urine. There was not much complaint of discomfort until the last few days. Catheter brought away over twenty ounces of urine. There is no history of traumatism, no symptoms of Pott's disease. The retention is probably due either to reflex spasm, from parasitic irritation of the intestine (the mother says he has passed round worms), or more probably to a tight adherent prepuce. This was loosened and pushed back during the catheterization, and at once began to set up a paraphimosis, which required no little effort to overcome.

Though there has been incontinence from retention for weeks, and the bladder has been so greatly dilated, the urine, though cloudy, is not ammoniacal, and, at most, only a slight catarrhal cystitis has been excited by the constant presence of urine.

Case XI.—A farmer, aged 35 or 40 years. Sounding showed the presence of what was thought to be a stone. Lithotrity was attempted, but as soon as Professor White caught the object between the blades of the lithotrite he said it did not feel like a stone, and asked if there was any history of a catheter having been broken off in the bladder, or allowed to slip in. After one or two vain attempts

to crush it, he did a lateral lithotomy and removed the mouth-piece of a pipe-stem. It was learned from the patient afterwards that this had been introduced into the deep urethra for purposes of sexual excitation. It had slipped from the straw to which it was fastened and was pushed into the bladder. Only a mild catarrhal cystitis had been set up by the presence of the thoroughly septic object, for which I suppose the man can thank his excellent general health and resistive tissues. After its removal, bladder symptoms promptly ceased. The case in which unilateral castration was tried for its effect on hypertrophy of the prostate was interesting because of the extension of the inflammatory process to the kidney and the resultant uremia.

Case XII.—Male, aged 68 years. Neglected, long-standing hypertrophy of prostate, followed by uremia. There had been, as there will be in most cases of neglected prostatic hypertrophy, some cystitis and ammoniacal urine before the attempt to relieve it by catheterization was made. The micro-organisms, finding their way into the bladder from the intestines, very probably just above the level of the prostate, the enlarged gland impinging on the rectum and so favoring, by obstruction of the intestine, the passage of bacteria through the intestinal walls. The kidney involvement is usually spoken of as an ascending infection that finds its way through the ureters to the kidney. In the light of modern bacteriological research it would seem more rational to explain it another way. The process is a microbic one that is supposed to travel upward from the bladder. Lymphatics are rare beneath the vesical mucosa, but still rarer in the ureter. Sappey[1] has been able to demonstrate the existence of a few lymphatic trunks in the horse, but none in man, though he concludes that they exist from analogy. Inflammatory processes of microbic origin and due to the actual presence of bacteria in a part do not spread except by the movement of the fluids of the part. And whatever little lymph movement there is in the lower part of the ureter would be towards the bladder, not away from it. Inflammation spreads from cell to cell when the morbid principle is a toxine, but not when it is a living irritant, unless some transferrence of contents takes place. Observations seem to show, however, that pathogenic bacteria may pass through a healthy kidney without setting up a pathological process in it, but as soon as they pass through they are carried to the bladder and their excretion completed. In cases where there is retention of urine, or where, because of frequent urination, the muscular coat of the bladder has become hypertrophied, it becomes more difficult for the peristaltic action of the ureter to force urine into the bladder. This at first produces compensatory hyper-

[1] Op. cit.

trophy, then dilatation of the ureter, and backing up of the urine on the kidney. This leads not only to resorption of excrementitious material and the retention of products that should be excreted, but also to the retention in the pelvis and tubules of an already weakened kidney of any micro-organisms that should find their way out by this avenue. The lesions of the kidney in such a case being due partly to the mechanical obstruction and retention of toxic materials in its substance, and partly to pathological processes set up by various bacteria retained there.

In three cases of chronic cystitis in the female that have been shown in the clinics and ward classes of the gynecological service, the origin has always been traced to the puerperium. In one case there was the history of catheterization after labor, and, as it was in private practice, it is to be supposed that it was done by touch alone, and micro-organisms from the vestibule were carried into the bladder. In at least one of the other cases, from its insidious origin, it could be suspected that there had been the passage of bacteria from the genital tract to the bladder through the lymph channels of the pelvis.

In a case that lasted thirteen years and was accompanied by such intense irritability of the bladder that there was micturition every fifteen minutes, the morphia habit had been acquired and large quantities of the drug had been taken. Cystoscopic examination showed patches of inflammation scattered over the body of the organ. The intense vitality of the vesical mucous membrane is shown by the fact that after this chronic course the lesions promptly healed as soon as the bladder was set at perfect physiological rest and urine not allowed to irritate the inflamed spots. This was accomplished by a vesico-vaginal fistula, the edges of which were freshened and promptly united after the cystitis was cured.

Experimental.

As the question of absorption of effete materials from the bladder during long-continued retention was an interesting one, absorption through the vesical mucous membrane being still disputed in physiology, some experiments on the subject were performed in the Physiological Laboratory of the University. They were done on dogs and rabbits.[1] It was found, though most of the physiologists teach "the absolute impermeability of the vesical mucous membrane," that strychnine, atropine, and apomorphine were readily absorbed when injected into the bladder, though the absorption was slow and comparatively large doses of the drugs were required to produce their physiological effect. It was found that ether and chloroform in the

[1] University Medical Magazine, Vol. vii, p. 913, Sept., 1895.

state of vapor were absorbed and eliminated by the breath, complete anesthesia occurring in rabbits but not in dogs. Further, a series of thirty observations by two experimenters on the amount of urine passed in twenty-four hours and of the amount of solids it contained seemed to show that there was a slight but constant decrease of the watery elements and the solids in the urine when it was passed four times a day, as compared with when it was passed twelve to fifteen times a day. That is to say that there was resorption of fluids and solids when the urine was retained for some time in the bladder.

Experiments made on dogs after ligature of the penis for ten hours showed that the state of irritation set up by this forced retention caused still further and more rapid absorption of drugs than before. The experiments were suggestive rather than conclusive, but they emphasize the clinical teaching that urine must not be allowed to accumulate in the bladder and be retained for long intervals; that care must be exercised in the injection of medicaments into the bladder, as their absorption may give constitutional symptoms; that such poisons as belladonna, or any other that is eliminated by the kidneys unchanged, require the emptying of the bladder by artificial means, or frequently in a natural way, as an essential part of the treatment.

They indicate, too, another reason for the general symptoms of malaise that often accompany cystitis, and show that the condition of blood known as ammonemia, and supposed to come from the resorption of the products of the ammoniacal fermentation of urine, is not only possible but probable. They emphasize also the indications for chronic cystitis,—viz., the employment of such means as will neutralize the urine, and make it unirritating and prevent fermentative processes, and would seem to call for local measures in the treatment of the affection,—*i.e.*, by washing out the bladder much sooner than is at present counselled. This being especially advisable in poisoning cases.

Some experiments on the absorptive power of the anterior and posterior urethra help perhaps to give a physiological reason beyond the mere fact of greater exposure on account of situation for the greater frequency of inflammatory processes in the anterior urethra. The anterior urethra absorbs drugs that are injected into it very rapidly, the physiological effects following almost as quickly as when the drugs are ingested into the stomach. The posterior urethra has much less absorptive power than the anterior urethra, comparing in that respect more with the bladder.[1]

[1] These observations are confirmed by some of the same kind reported in Schmidt's Jahrbücher, January, 1895

MEMORANDA.

A FETUS AMORPHUS.

The splendid teratological collection in the Wistar Museum, unapproached in this hemisphere, has been further enriched by the acquisition of a typical fetus amorphus or anideus, presented to the Wistar Museum by D. W. Magee, M.D., of Peoria, Ill. This specimen completed the series of acardiaci up to a paracephalus, the highest type of the omphalositic parasites.

In the fetus anideus or amorphus, the lowest form of omphalosite, the parasitic fetus is reduced to a shapeless mass of flesh covered with skin. There may be a bunch of hair and a slight prominence to denote the cephalic end of the mass. Internally there is apt to be a more complicated structure than one would expect from the external appearance. Single bones, especially those of the pelvis and some of the vertebræ, more or less well developed, may be found. There are portions of the gut ending in blind pouches above and below. The subcutaneous connective tissue is usually hypertrophied, cystic, and edematous. In Neugebauer's specimen, however, this was not the case, nor is it so in this one. There is usually no trace of a heart (Ahlfeld says never), but in Neugebauer's typical case of amorphous fetus, in which the parasite was a mass no bigger than a clinched fist, attached to the placenta by a pedicle two centimetres long, there was a single-chambered heart. There are two small vessels in the cord, artery, and vein. Often there is no cord, but the vessels of the parasite run in the membranes.

There is nothing peculiar in the history of Dr. Magee's patient. The other fetus of the twins or the host of this ill-formed parasitic mass of flesh (see plate) was a normal, well-developed child born alive, at full term. The specimen has, as may be seen, a scanty bunch of hair on it. There is a cartilaginous plate near this and a small bud-like projection, probably indicating a rudimentary limb, or, perhaps, the cephalic extremity. The whole mass is no bigger than a clinched fist. There is certainly nothing in its external appearance to denote that it represents a human being.

Barton Cooke Hirst, M.D.

Fetus Amorphus.

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A CASE OF ELBOW PRESENTATION.

The following case may be of interest to the readers of the University Medical Magazine:

At 9 A.M., August 20, 1895, I was urgently requested to attend Mrs. R., who was in labor. After considerable questioning, I finally received the information from the midwife and nurse present that Mrs. R. had experienced regular pains for at least two days, and that the bag of waters, exceptionally large, had ruptured about seven hours before my arrival. I then made an examination and found a transverse position of the child with the head to the left, and an elbow presentation. The shoulder was impacted, the os was very thin, the contraction-ring high up towards the umbilicus, the pains frequent and very severe, and the patient almost pulseless. A part of the amniotic sac hung out of the vulva. The arm that projected was blue, swollen, and edematous.

I could distinguish no fetal heart-sounds.

Having despatched a messenger for medical assistance, expecting to resort to embryotomy, since version was out of the question, I began the administration of an anesthetic. Fortunately no physician and embryotomy instruments arrived in response to my note, for during the first stage of anesthesia the child doubled upon itself in a peculiar manner, and made its exit from the vulvar orifice as if shot from a catapult. The shoulder and back came first, followed by the head pressed against the breach, and, finally, the lower extremities. This occurred about 10 A.M. The placenta was delivered thirty minutes later, and was found intact. Crede's method was resorted to.

Mrs. R. is 38 years of age, and is short and thick set. She has had fourteen children, the last two being still-born. She claimed that in this last confinement she did not expect to be delivered so soon, and insisted with a great deal of emphasis that she felt the fetal movements before the membranes ruptured. She thought that she would bear twins, because she was much larger than usual.

The dead child presented a characteristic appearance. The shoulder that had been extended from the uterine os, as well as the whole arm, was dusky and swollen to three times its usual size, thus giving a beautiful demonstration of the abnormal presentation. The epidermis peeled off very readily.

I attended the woman during the puerperium, and was puzzled at first to account for an extremely rapid pulse, and a rapidly-increasing dyspnea. Fearing septic infection, although the temperature was practically normal, I gave her brandy, full diet, ergot, and paregoric, to favor contraction of the uterine muscle, and thus close the wide

lymphatic channels against the spread of bacterial products, and sodium salicylate, and quinine in large doses. The dyspnea under this treatment continued to get worse. The pulse did not improve. The patient continually expressed herself as feeling "pretty smart," and did not at all present the appearance of one suffering from a serious puerperal septicemia.

Rather late in the day, it must be confessed, I examined her heart. I found a weakened and hypertrophied cardiac muscle, and a mitral systolic murmur transmitted into the axilla. Her feet, soon after labor, began to swell. She told me that when she was three months pregnant she complained of pains in her left side and dyspnea.

I believe, taking everything into consideration, that her trouble dated from the time she began to have the pain in her left side, which, followed by a gradually failing compensation, resulted in a venous stasis, hydramnios, dyspnea, and, perhaps, in this indirect way, other conditions being favorable, induced the abnormal position of the child, which so seriously complicated the labor.

As soon as diagnosis of failing heart was made, she was put upon digitalis, and is now entirely recovered. The only injury she sustained was a slight perineal tear.

M. B. Gomberg, M.D.

Providence, R. I.

ALUMNI NOTES.

The Opening of the One Hundred and Thirtieth Annual Session of the Medical Department.

The formal opening of the One Hundred and Thirtieth Annual Session of the Medical Department of the University of Pennsylvania took place at noon, on Tuesday, October 1, in the chapel of College Hall. Short addresses were made by Mr. C. C. Harrison, Rev. Dr. Fullerton, and Dr. H. C. Wood. Mr. Harrison's address was, in part, as follows:

Gentlemen: I welcome the old students of the medical and dental schools back to their work; and with equal cordiality, the new students of each of these important departments. It seems to me, indeed, that almost too much time is taken out of a young man's life by the great length of the "long" vacation. This is, however, not the time for me to discuss this important question. It is engaging the attention of thoughtful men charged with the duties of administration, and will, I doubt not, receive in due time a wise solution.

Before I approach the two or three practical words which I wish to speak to you in the few minutes which are allotted to me, I should like to suggest how inspiring it would be if an arrangement could be made in the future by which, at the opening of every University year, all the students and professors of the University would assemble together in convocation to celebrate the entering upon the duties of a new year, instead of meeting separately in their several departments. We would meet, then, as a whole, and would, I think, gain strength and interest by such contact one with another. I hope that the thought may receive some consideration.

Now, in my position as a servant, not only of the University as a whole, but of each department and school in the University, there are, I confess, two or three matters at the opening of this new year to which I feel it my duty to call your attention. The first of these is the great importance, as it seems to me, that every one who chooses for himself a professional career should be a well-educated man. The signs of the times all point to very rigid admission requirements in the early future to all those who mark out for themselves such responsible positions. It is well that it is so. The simple question is, Is it right that a man should be allowed to go into medicine, or law, or dentistry, or any other profession, without having enjoyed a good secondary education,—without being, in the first instance, a well-educated man, with a capacity to think for himself, as well as special technical training? Surely the professions demand a broader and deeper preparation than is now commonly accorded them.

I believe that within a very few years the men who go out from the professional schools of our great universities—the men with whom you will have to compete in life and in your profession—are going to be well-educated men; that both entrance and exit of the professional school will be much more carefully guarded in the future than they have been in the past, at this and at other universities.

I do not say these things by way of discouragement; I say them by way of exhortation and warning. To any of you who are lacking in the preparation of which I have spoken, there is a chance to make up partially, at least, what is wanting by time properly spent. What is the historic reason why medical and other kindred schools are now so thronged? Is it not that the "cura et regimen animarum" has ceased to be the sole subject of solicitude on the part of mankind? The body, the vehicle of the soul; life here fuller and in greater measure,—this men have come to place side by side with the great subject which years ago formed almost the sole object of earnest study. The care of the body in its every function, the prolongation of life, the mitigation of suffering, the prevention of disease, have become, and rightly become, engrossing subjects; and those who assume to be intrusted with this grave responsibility to society—the care of the body—ought, indeed, to be selected from among our very best young men. I am quite sure that you will have to meet such selected men. Other universities are already either requiring a high preliminary education or are arranging to do so. The University's duty, it seems to me, is clearly to shape its course in this direction. Human life is ever growing to us more sacred, and we have come to regard the great power for good or evil which the physician exerts in every household as second only to that of the minister of God. None should enter our doors who is likely to go out of them an unfit man.

Our medical school is indeed famous, and our dental school will become of great repute; but we are living now in the midst of new conditions,—conditions which affect every other calling in life and to which every other calling has been obliged to adjust itself. I want, therefore, to speak with great earnestness to you upon this the first day of your new year, and beg you to use every opportunity

which this great University affords of going out from its gates men of liberal education, as well as men of professional training. I want to go further than this, and to fully recognize the duty and responsibility of the corporation to you. You are assembled here at her invitation for distinct and important purposes, and it is the duty of the corporation to provide in every way for the accomplishment of these high ends. The University's duties to you are great and manifold,—just as serious as are yours to the University. I can only promise that the corporation will, to the utmost of its strength, endeavor to make the courses of instruction, as regards its teachers, as regards its equipment, as regards its clinical facilities, as broad and comprehensive as patient and earnest work can make them. This is our duty towards you; and to help in its accomplishment is almost the only way in which I can serve you. I do wish to serve each one of you in this way to the limit of my strength. Let me ask you to make our task easier by co-operating in every possible way with the official representatives of the Board of Trustees in your Departments,—the Deans of your schools. These gentlemen occupy an honorable but a responsible and laborious position, charged as they are with the oversight of the instruction and discipline of the department. I mean to use the word "discipline" in the widest sense. They are responsible for the life of the student, and all that touches him ought to touch them. Will you not help them to help you, and thus to serve as they should the University to which we all owe allegiance?

And now, in conclusion, may I say to you one word of friendly interest and advice? I cannot be with you each day as your professors are; it is seldom that I can look into your faces,—I can only try to serve in the ways, some of which I have indicated. But I want to appeal to each one of you in the most earnest way to be marked by great sobriety and cleanliness of life while you are attached to this University,—and, indeed, through all your life. There are rare opportunities to be had here for recreation as well as for study. There is no one of you who cannot, if he will, be under such influences as will keep him from going astray. Upon such a course of life I ask you now to enter, and whether you are in trouble or out of trouble, I wish to be regarded by each one of you—as by every student of the University—as an elder brother.

An Exploring Trip under the Direction of two Alumni of the Medical Department.

Dr. William H. Furness 3d and Dr. H. M. Hiller, both members of the class of '91, have started for the South Sea Islands, where they will spend *at least* a year in collecting ethnological and archeological specimens for the University. Should the field prove fruitful, it is probable that their stay may be prolonged to two years. After arriving at San Francisco they will sail for Yokohama, touching at Honolulu. They will proceed to Singapore, and from there will take passage for the Philippine Islands, visiting other groups of the East Indian and South Pacific Archipelagoes in a chartered vessel.

We are glad to know that some of our naval officers do good work in addition to their routine service. Surgeon F. B. Stephenson, United States Navy, has lately finished translations from several Russian publications about the gipsy moth, for the State Board of

Agriculture of Massachusetts. During a recent cruise on the Asiatic Station, Dr. Stephenson made use of his opportunities to advantage in gaining a practical knowledge of the language of this nation,—so rapidly growing in strength and influence.—*Army and Navy Journal.*

Necrology.

Dr. James Collins died suddenly in Philadelphia on October 7, 1895. Dr. Collins was born at Pinesville, Bucks County, Pa., October 20, 1830. He received his preliminary education at Amherst College, and graduated in medicine from the University of Pennsylvania in 1860. Subsequently he studied in Göttingen, Germany, where he remained until the outbreak of the Rebellion. He then entered the Union army and was appointed surgeon of the Third Regiment, Pennsylvania Reserve Volunteer Corps. He served in the Army of the Potomac, and was captured and confined in Libby Prison in the summer of 1862. He was subsequently assistant surgeon and surgeon of the United States Volunteers, with the rank of brevet lieutenant-colonel. Dr. Collins was for seven years demonstrator of surgery in the University of Pennsylvania, and was for thirteen years consulting surgeon of the German Hospital

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Contra-indicated during Pregnancy.

Huguenin mentions as chief of the remedies which are dangerous to the pregnant woman, salicylate of soda and ergot. Purgatives—castor oil, mineral salts, and especially aloes—should be avoided. Oxalic acid and its salts—oxalate of potash, etc.—may prove dangerous. Antipyrin frequently taken inhibits the lacteal secretion; cocaine locally applied for fissured nipples has the same effect, and should be proscribed for nursing women. As to operative measures, they are not absolutely contra-indicated; we may, for example, extirpate a peri-uterine tumor, the development of which hinders pregnancy, provided the operation is speedy and little blood lost. It is better to wait until the fourth or fifth month before operating. Operations in the vagina or uterus, no matter how minor, should be avoided in order to avoid suspicions of abortion in the patient's mind. —*Journal of the American Medical Association.*

EDITORIAL.

THE PRESENT STATUS OF THE ANTITOXIN TREATMENT OF DIPHTHERIA.

Nearly a year has elapsed since the antitoxin treatment of diphtheria has been at the service of more than a few favored investigators, and by this time a sufficient number of cases has accumulated upon which a fair estimate of the value of the healing serum can be based. Diphtheria is a disease so varied in the severity of its manifestations and so liable to be mistaken for less serious affections that it is only after a very careful analysis of many thousands of cases, in the hands of competent observers, that the true value of a given remedy can be determined. During the last year there have appeared in the various medical journals reports of the results obtained with the serum treatment in more than 15,000 cases, representing all ages and all degrees of severity, and after a careful consideration of this great mass of testimony, it must be admitted that we have in antitoxin a remedy for diphtheria far superior to any known heretofore, and one which should be employed at the earliest possible moment after the recognition of the disease.

At the recent meeting of the British Medical Association, Dr. Sydney Martin opened the discussion of the antitoxin treatment of diphtheria, by presenting a paper embodying the results obtained by him in a series of experiments with antitoxin. His investigations showed that when administered in sufficient dose antitoxin had the power of counteracting the effects not only of the diphtheritic toxin or ferment found in the false membrane, but also the effects of the albuminoses which are found in the tissues of patients dead of diphtheria, probably through the action of ferment on the cells. The testimony of the other members of the association who took part in the general discussion which followed the reading of Dr. Martin's paper, was with one exception uniformly favorable to the new treatment.

A collective investigation recently undertaken by the *Deutsche medicinische Wochenschrift*, for the purpose of determining the status of the antitoxin treatment in Germany, yielded the following results: The report deals with 10,312 cases of diphtheria, all of which were

treated between October 1, 1894, and April 1, 1895. Of this number 5883 were treated with antitoxin, and 4479 without it; the mortality in the former group was 9.6 per cent., while in the latter it was 14.7 per cent. Of 2556 children, between 2 and 10 years of age, the fatality under the serum treatment was 4.0 per cent., while the death-rate among the others not so treated was 15.2 per cent. Of 696 patients over 10 years of age treated with serum only 1 per cent. died, the mortality among the others between these years not so treated being 3.7 per cent.

A most exhaustive paper dealing with the results obtained with the antitoxin treatment has been written by Dr. William H. Welch, and appears in the *Bulletin of the Johns Hopkins Hospital* for July and August, 1895. The paper is based upon the author's address at the opening of the discussion on this subject before the Association of American Physicians, held in Washington May 31, 1895. After a brief review of the pathology of diphtheria, Dr. Welch presents a synopsis of eighty-two reports from eighty different sources, containing in all 7166 cases treated with antitoxin. In the compilation of these statistics general statements without detail were not used, and reports of single cases, and of series of cases less than ten, were not considered; moreover, the tables do not include the cases published in the investigations inaugurated by the *Deutsche medicinische Wochenschrift.* Of the 7166 patients with diphtheria treated with antitoxin 1239, or 17.3 per cent., died. Among these cases were included many treated shortly after the introduction of the serum treatment with entirely insufficient doses. In forty-six reports contained in the table, the previous or simultaneous percentage of deaths from diphtheria not treated with antitoxin is given for the same hospital or locality in which the cases were treated with antitoxin. These reports contain 5406 cases of diphtheria treated with antitoxin, with 1008 deaths, or 18.6 per cent. The number of deaths in these series of cases, based upon the previous fatality, would have been 2279, or 42.1 per cent. In commenting upon these statistics, Dr. Welch observes, "There must be a much greater difference between the characters of the cases composing the two groups compared than appears from the statements of the writers and the details of the cases described, if this striking reduction in the fatality is not due to the serum treatment;" and again, "So far as I can judge, no proof has been brought forward in support of the opinion that the low percentage of fatality of diphtheria treated with antitoxin can be referred in any large measure to the prevalence of an unusually mild type of the disease, although in a few scattered groups of cases, particularly some of the smaller series in my table, this may be in part the explanation."

Of 4294 cases treated with antitoxin 27.2 per cent. required tracheotomy or intubation. According to Roux, before the introduction of the serum treatment, 50 per cent. of the cases of diphtheria required tracheotomy. Welch states that in Baginsky's service 43.9 per cent. of the cases were operated on before the use of serum, and 18.1 per cent. after its introduction; in Von Ranke's service the corresponding figures are 57 per cent. before, and 43.5 per cent. after; Bokai's, 65.6 per cent. before, and 40.8 per cent. after.

In forty-one reports there were 648 tracheotomies, with 258 deaths, a fatality of 39.8 per cent., and 342 intubations with 99 deaths, a fatality of 28.9 per cent., and 26 intubations followed by tracheotomy with 14 deaths, a fatality of 53.8 per cent. In order to determine the fatality according to age under the antitoxin treatment, a special table was constructed of the cases treated with serum collected from twenty-five reports. This table shows that there were treated 35 cases under 1 year with 16 deaths, or 45.7 per cent.; under 2 years 291 cases with 97 deaths, or 33.3 per cent.; under 3 years 304 cases with 93 deaths, or 30.6 per cent.; and under 4 years 692 cases with 122 deaths, or 17.6 per cent. The fatality under the old treatment for cases under 2 years of age, based upon the statistics of several observers, as between 60 and 80 per cent.

Of 1729 cases of diphtheria with a fatality of 14.9 per cent., 1115 cases treated with antitoxin during the first three days of the disease yielded a fatality of 8.5 per cent., whereas 546 cases in which antitoxin was first injected after the third day of the disease yielded a fatality of 27.8 per cent.

Of 232 cases in which treatment was begun on the first day 5 (2.15 per cent.) died; of 492 cases in which treatment was begun on the second day 38 (7.7 per cent.) died; of 331 cases in which treatment was begun on the third day 43 (13 per cent.) died.

A careful weighing of all the evidence submitted upon the subject up to the present time seems to establish the following facts: That antitoxin is a curative agent far more efficacious in diphtheria than any remedy heretofore employed; that its injection is very rarely followed by serious local disturbances, such as abscess, and, perhaps, never when the preparation is pure and employed under antiseptic precautions; that a marked improvement in both the local and general symptoms of diphtheria is noticeable within twenty-four to forty-eight hours after the injection of the serum; that the antitoxin has a decided influence in preventing the spread of the false membrane into the larynx and trachea; that the earlier in course of the disease the serum is employed the more favorable are the results; that it is distinctly more efficient in the fibrinous types of the disease than in

the septic ones; that the liability to paralysis and albuminuria is not lessened by the use of serum, but probably somewhat enhanced thereby; that genuine nephritis, on the other hand, is less frequently observed in cases of diphtheria treated with antitoxin than with other remedies; that antitoxin may produce certain untoward symptoms, such as various cutaneous rashes, but that these are not serious in their nature and are unattended with danger to life; and that improvement in the methods of preparing the serum and more definite knowledge as to the manner of its employment have rendered the later reports even more favorable to its use than the earlier ones.

THE GENERAL ALUMNI SOCIETY OF THE UNIVERSITY.

The General Alumni Society of the University will shortly occupy a suite of rooms in the Franklin Building, Twelfth Street below Chestnut, in this city. The officers purpose raising, by voluntary subscription, an alumni fund to be devoted to the current needs of the University. The chief object of the Society is to foster a fraternal spirit in the departments and classes of the University, and to this end a paper, to be called the *University Alumni Bulletin*, will be published, and a special endeavor made to promote class reunions.

THE UNIVERSITY DORMITORIES.

The work on the dormitories of the University is progressing rapidly. Of the forty-four buildings or cottages which will form its dormitories, sixteen are now in course of erection on the triangular plot of ground on Woodland Avenue and Pine Street, directly west of the old athletic grounds. The material used is a special design of Sayreville brick, with trimmings of Indiana limestone. The entrance to the buildings will be from the quadrangle only, there being no ingress from the street. The trustees have not yet determined on the cost of living in the dormitories. A short time ago, however, letters were sent to 500 students, inquiring the prices paid by them for board, and from the answers received it is expected that an averrage charge will be determined upon.

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.,

ASSISTED BY

M. HOWARD FUSSELL, M.D.

Paraesthesia confined to the Distribution of the Nervous Cutaneus Femoris Externus.

Bernhardt (*Neurologisches Centralblatt*, No. 6, 1895) reports a number of cases of men of middle age who were the subjects of abnormal sensations, generally numbness, confined to the anterior, and especially the external surface of the thigh. These sensations, following long-continued exertion, or on pressure, became painful, which at times was quite severe. The only objectively demonstrable disturbance was a moderate anesthesia confined to the distribution of the external cutaneous nerve; the general health was good, mobility was not impaired, nor was there any implication of the bladder or rectum. Etiologically, he demonstrated infectious diseases (typhoid fever), intoxications (lead), and chillings (cold douches). Therapeutically it cannot be much influenced, but being a non-progressive disease should give rise to little anxiety.

Naecke (*Ibid.*, No. 8, 1895), as a sequence to Bernhardt's communication, details the affection as he himself experienced it. Following a trauma he became subject to a sensation of tension and formication confined to the region supplied by the nervous cutaneus femoris externus. There was no pain, and but a slight diminution of sensation. The affection disappeared almost entirely at the end of three months.

Mental Symptoms in Relation to Exophthalmic Goitre.

Maude (*British Medical Journal*, September 28, 1895) contends that in exophthalmic goitre there is a very definite form of mental change, only lacking in one of his twenty cases, characterized by extreme motor restlessness, extreme insomnia, and occasional sensorial illusions of sight and hearing, but it is doubtful whether some cases of auditory illusions are not dependent upon Eustachian tube catarrh, found common in Graves's disease. He found the more particularly psychical changes were irritability of temper, incapacity for mental application, loss of memory, and untruthfulness, and Sir J. Russel Reynolds has described a condition quite common as "chorea of idea." Another common condition is a morbid sense of duty akin to religious melancholia, but not accompanied by definite melancholia. If definite alienation, which occurred in only one case of the author's twenty, does take place, the commonest form is melancholia; delusions of persecution are also frequently seen. Mania occurring in the course of exophthalmic goitre is of bad augury.

Intermittent Diplococcus Pneumonia.

Arader (*Wiener klinische Wochenschrift*, No. 22, 1895) reports an interesting case of this rather uncommon affection. The case was a moderately severe pneumonia lasting six days, during which there occurred attacks of continued fever lasting forty-eight, twelve, fifteen, and seven hours; between these attacks there being intermissions of from nine to thirteen hours' duration. The bacteriological examination of the characteristic reddish-brown sputum permitted the diagnosis of a true croupous pneumonia. The cause of the affection was the diplococcus lanceolatus, to which was also ascribed a later occurring pleural exudation. There were no influenza bacilli nor streptococci. The intermittent character of the pneumonia is explained on the assumption of a mixed infection with malaria, or, what is more probable, the diplococcus pneumonia was modified by a previous malarial change of the blood or nervous system.

Tumor of the Corpora Quadrigemina.

Guthrie and Turner (*Lancet*, Vol. I, p. 273, 1895) report the case of a piano-maker who, three years previous to observation, was affected with earache and slight discharge. Complaining of frontal headache and vertigo he was admitted to the hospital. Examination: Patient much emaciated; semiconscious; expression dull and listless, though not indicative of pain; some tenderness in the occipital region and in right side of neck; head retracted and turned to right. Raised to a sitting posture he would fall heavily back; placed on his feet he was unable to stand because of inclination backward. Could walk in short steps when strongly supported; gait not ataxic. Paresis of right external rectus; spasm of both internal recti (marked convergent strabismus); pupils moderately dilated; right reacted moderately to accommodation, doubtful to light; reaction to both was doubtful in left; no ptosis; most intense bilateral optic neuritis. Beyond the paresis of the right external rectus there was no paralysis of any part of the muscular system, though there was some tremulousness of the right arm and hand. Some incontinence of urine and constipation. Complete absence of knee-jerk on both sides. Superficial reflexes, cremasteric, abdominal, and plantar exaggerated. A diagnosis of cerebellar tumor or abscess—probably the latter—was made and the patient trephined with negative results. The patient died a week after the operation. The necropsy revealed slight milkiness of the cortical pia arachnoid with increase of the cerebro-spinal fluid and matting of the membranes over the base; considerable dilatation of both lateral ventricles and excess of the ventricular fluid. A hard, somewhat nodular swelling occupied the position of the quadrigeminal bodies and extended into the left optic thalamus. Microscopical examination showed the tumor to extend from the junction of the posterior and middle thirds of the left optic thalamus as far back as the posterior border of the testes. It involved the posterior part of the left optic thalamus and merely pressed upon without implicating the right thalamus. It destroyed both the anterior and posterior quadrigeminal bodies, the right being less implicated than the left. It invaded the gray matter around the Sylvian aqueduct, and passed up to and involved the dorso-mesial part of the subthalamic region on the left side only. The tegmentum pontis et cruris was unaffected. The left lateral fillet, in its course to the left testis, was involved. Histologically the tumor was an angio-sarcoma. Attention is called to the two prominent symptoms of tumor of the corpora quadrigemina,—unsteady gait and oculomotor paralysis, and in addition to the fact that vision is not materially altered, except by the condition of the optic neuritis, a constant feature of such cases.

Concerning Diabetes Mellitus.

Teschemacher (*Deutsche medicinische Wochenschrift*, No. 17, 1895) draws attention to the fact that the daily amount of urine does not always stand in relationship to the quantity of sugar, increasing and decreasing with it; and further, that the specific gravity of the urine alone is not to be accepted as indicative of the presence or absence of sugar. He cites a case in which the daily amount of urine was 1000 to 1100 cubic centimetres, the quantity of sugar 12 per cent.; and refers to other cases in which the polyuria is excessive, the quantity of sugar small. The specific gravity is especially likely to be low when albuminuria is present. The presence of diacetic acid is of importance as it usually occurs in young individuals, particularly in the acute form of diabetes, but too much value is not to be placed upon it as being the precursor of coma. He calls attention to the frequent occurrence of muscular cramps, particularly in the calf of the leg. Acute gastric catarrh, furunculosis, and falling out of the teeth are symptoms which call for an examination of the urine for sugar. He has never failed to find the patellar tendon reflex in young patients, and in older ones it is no oftener absent than in apparently healthy individuals past the fifth decennium. He mentions the transitory presence of sugar in the urine following relatively large injections of Koch's tuberculin, as a contribution to the study of artificial glycosuria.

Pulmonary Gangrene following Influenza.

Rhyner (*Münchener medicinische Wochenschrift*, Nos. 9 and 10, 1895) reports his observations of three cases of influenza pneumonia which progressed to gangrene. In the first case the sputum and expired air were fetid from the beginning of the illness. The patient died with symptoms of sepsis in the third week. In the second case the gangrenous focus broke through the pleura, causing a pyopneumothorax. Following evacuation of the pus, recovery ensued. The third case is still under observation. In this case a pyopneumothorax also occurred. The operation, however, produced but little beneficial effect, as purulent discharge, cough, and hectic fever still continue.

The Patellar Tendon Reflex in Diabetes Mellitus.

Grube (*Deutsche medicinische Wochenschrift*, No. 23, 1895) writes in opposition to the view that patients with diabetes in whom the patellar tendon reflex is absent, and in whom there is no other cause to account for this, are subjects of the severe form of diabetes. In thirty-three cases of the mild form he found the reflex absent in twelve (36.3 per cent.), in six cases of the severe form it was absent in one (16.6 per cent.), and then unilateral. In 170 cases of the combined forms the reflex was absent in twenty-three (13.5 per cent.). A positive influence exerted by the age of the patient was not demonstrable. The symptom is of no prognostic importance.

A Case of Lead-Poisoning with Most Unusual Symptoms.

Janowski (*Neurologisches Centralblatt*, No. 7, 1895) details the clinical history of a plumber, aged 27 years, who, in addition to the ordinary symptoms of lead-poisoning,—colic, constipation, yellowish skin, tendency of the gums to bleed, blue line on the gums, fetid odor from the mouth, and a previous ulnar paralysis,—exhibited other remarkable symptoms. (1) Embryocardia, the pulse at times

attaining a frequency of 200 beats per minute, to be the following day normal. This was believed to be due to a direct action of the lead on the cardiac ganglia. (2) A paralysis of the two lower branches of the right facial nerve. (3) Right-sided myosis with diminished light reflex. These latter two symptoms are attributed to the lead intoxication, there being no other explanation. Lead was demonstrated in the gums and in the urine.

Carbolic Acid Coma.

Lucas and Lane (*Lancet*, June 1, 1895) report two cases of carbolic acid poisoning induced by the application of compresses saturated with 5-per-cent. carbolic acid solution, as a preparation for operation. These cases are alike interesting because of the manner of the introduction into the system of the carbolic acid, and because of the clinical symptoms of the poisoning; severe collapse with low temperature; very rapid, weak pulse; vomiting; profuse perspiration; coma, lasting in one case four hours, in the other eight hours; in both cases stertorous breathing, absence of the corneal reflex, though the pupillary light reaction remained present; occasional spasm of the eyelids, and faint tonic contractions of the hands and arms; transitory anuria. Vomiting and "carbolic acid urine" persisted for three days, the patients ultimately recovering.

Mental Symptoms occurring in Bodily Disease.

Reynolds (*British Medical Journal*, September 28, 1895). Mental symptoms occurring in bodily disease may be divided into those slight mental changes in the feelings and emotions not amounting to actual certifiable insanity, and actual insanity. The slight mental states may be roughly subdivided into pleasurable feelings, depressed feelings, conditions of mental dulness, abnormal irritability of temper, and feelings of terror. His conclusions:

(1) It is a comparatively rare occurrence for actual insanity to develop during the course of bodily disease.

(2) In general hospitals mental disease most commonly occurs after fevers, poisons, injuries, operations, and heart-disease (in about this order of frequency).

(3) In the early stages of fevers and after injuries and operations, mania is the commonest form of insanity; but in other conditions depression is more common; but the commonest form is an insanity with marked delusions of persecution (often associated with hallucinations of hearing), such as one sees in phthisis and heart-disease, and after typhoid fever.

(4) There is no form of insanity connected with special bodily disease, so that it is impossible to diagnose the bodily disease from the mental symptoms present (except the peculiar state of alcoholic paralysis).

(5) Insanity occurs with unusual frequency in bodily disease associated with peripheral neuritis, as poisoning by alcohol, carbon bisulphide, and lead; pellagra, typhoid, typhus, scarlet and rheumatic fevers, influenza, pneumonia, phthisis, syphilis, septicemia, rheumatism, gout, and diabetes. Is it possible that in these conditions the factor which causes the changes in the peripheral nerves causes also similar changes in the multitudinous internuncial fibres in the brain, and so produces disturbances in the normal cerebral reactions which go to make up a healthy mind?

(6) When the cause is not continuous—such as the poisons, the fevers, and the traumata—the mental symptoms in the great majority of cases disappear; in heart disease and phthisis they may disappear and reappear from time to time, but in some cases, such as insanity connected with gouty kidney, they only disappear with death.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

G. G. DAVIS, M.D., M.R.C.S., AND ELLWOOD R. KIRBY, M.D.

Anal Fissure or Ulcer.

Cripps (*British Medical Journal*, July 20, 1895) advises asking the following questions in investigating affections of the rectum:

(1) How frequently do you go to the closet?

(2) Do you pass any discharge from the bowel, and what does it look like?

(3) Do you have any pain, and does it come on immediately after passing a motion?

(4) Does any part of the body come down at stool?

(5) Do you pass any blood?

(6) Is the pan ever sprinkled or splashed with blood as if it had come out in a fine jet?

If patients have frequent calls to the closet extending over months, one will almost certainly find either ulceration, cancer, or stricture. If constipation is present, or if there is only one stool a day, none of these are likely to be present. If discharge comes from inside the bowel, and it is clear, it may be mucus from internal prolapse or piles. If the quantity is considerable, a villous growth or polypus may be suspected. If purulent or coffee-ground in appearance, there may be internal ulceration, fibrous stricture, or cancer. Discharges originating externally and staining the linen generally come from a fistula. Bleeding is common in almost all forms of rectal disorder, but if the pan is sprinkled with blood internal piles are almost certainly present. Any disease situated above an inch from the anus may be free from pain.

Treatment.—The bowels should be kept open with a teaspoonful of confection of senna, fifteen to thirty drops of fluid extract of cascara, or rhubarb, or colocynth pills. A soothing ointment of six grains of morphine to the ounce of unguentum petrolii may be applied five minutes previous to stool, and an astringent ointment, as subsulphate of iron, ten grains to the ounce of ointment, or tannic acid, twenty grains to ounce after the stool.

Another good ointment is ten grains of camphor or fifteen drops of carbolic acid to the ounce.

To prepare for operation give two pills of pil. colocynth. com. gr. iv, pil. rhei com. gr. vi, divided into two pills, taken at bedtime two days preceding the operation. An hour before the operation give enema. Sinuses are to be laid open and the ulcer cut longitudinally. The incision should be a third of an inch deep. A strip of gauze smeared with eucalyptus ointment is put in the cut and castor oil given to move the bowels on the fifth day. When the patient gets up he may walk, but should sit as little as possible.

Treatment of Hammer-Toe.

Peraire (*Revue de Chirurgie*, July, 1895) advocates the operation of Terrier for hammer-toe. He describes it as follows:

(1) A dorsal flap is made reaching to the projection corresponding to the articulation between the first and second phalanx. Any inflamed bursa present is removed.

(2) The articulation is opened by a dorsal incision, the extensor tendon being divided. The lateral ligaments are next divided.

(3) The head of the phalanx being elevated is cleared of fibrous tissue, a portion of it on the dorsal surface being removed.

(4) Both articular extremities of the joint are then removed with a cutting forceps. It is important to only remove enough to allow the toe to lie straight.

(5) Suture of the parts with silkworm gut and dress on a plantar splint of wood. In eight days the dressing is changed and the toe again placed for another eight days on the splint. At the end of that time the cure is complete and the patient can begin to walk. The operation is done under cocaine. The removal of the nail and matrix is advised to be done at the same time. Five cases are detailed at length.

On Modern Advances in Surgery.

Jonathan Hutchinson (*Lancet*, August 3, 1895) delivered the address in surgery before the British Medical Association which the late Arthur Durham had been appointed to read. It is, like all his work, a masterpiece. After alluding with feeling to Mr. Durham's death he proceeds to comment on surgical progress. He begins by referring to the "Critical Inquiry into the Present State of Surgery," by Samuel Sharp, 1750. That author wrote, "Perhaps there was never a period of time in which any art was more cultivated than surgery has been for these last thirty years" Yet he dismissed fractures and luxations with the remark that all surgeons were agreed as to their treatment. With an almost similar remark he put aside "tumors, wounds, abscesses, and ulcers," asserting that their treatment is "fundamentally the same in every country of Europe." The whole volume embraced less than 300 pages. On excision of the tonsils he said, "There is not an operation in surgery that in my opinion ought to give an operator so much encouragement. It is neither dreadful in the doing nor melancholy in the event." Mr. Hutchinson remarks that from this we may infer much as to his general experience of the major operations of his day. He approvingly quotes Roux as saying that he was amazed that an institution for the advancement of surgery should devote to comparative anatomy most of its lectures and the best part of its museum space. Having been the junior colleague of Sir Spencer Wells in editing the *Medical Times and Gazette* he gathered statistics of operations in the various hospitals from 1855 to 1858. In many instances he says he was cognizant of details which it was not permissible to put in print. At one time he, as well as Mr. Wells, regarded the operation of ovariotomy as not much removed from manslaughter. He knew of fourteen cases in succession in different institutions that died, and there was a rumor that a coroner threatened to investigate the next case on which Baker Brown dared to operate. Another operation he condemned was crushing for stone. A not inconsiderable number of the patients did actually die after it, and of the others it appeared to be the fact that scarcely any were really cured. When Bigelow's operation came he found that he could not do it as neatly and quickly as those who made it a special pursuit, and thereafter he turned the appropriate cases over to them. The results of so doing he characterizes as follows: "I assure you that I regard the results of my practice in this department ever since I ceased to operate with my own hands with the utmost satisfaction and pride." He did his first operation of ovariotomy within two months of Mr. Spencer Wells, and states that he devised the

clamp so successfully used in treating the pedicle. Mr. Wells afterwards acknowledged his indebtedness to it. Finding that Mr. Wells had better success than he had, "and acting on the rule of conduct that I would never keep a patient in my own hands if I believed that some one else could do what was needed with greater prospect of success," he gave up doing ovariotomies and transferred them elsewhere. He attributes his want of success to the fact that, as a general surgeon, he could not avoid carrying infection to his patients. Another disappointment he had was in seeing his clamp replaced by the ligature. Referring to specialism and Roux's denunciation of it he says, "If we could get the gross statistics of ovariotomy and lithotrity for the whole kingdom, I much fear that the ratio of success would be found to fall lamentably short of that habitually secured by our best specialists." The results of Dr. Kegan, in India, in litholapaxy in children, of Sir Henry Thompson in lithotrity in adults, and those of Mr. Mayo Robson in operations on the gall-bladder are all quoted as good examples of personal specialism. To encourage specialism in many branches of operative surgery is, then, he says, in consonance with common sense and common humanity. After calling attention to the enormous increase of operations he alludes to the nurses. What this class of women did before nursing, he says, is a constant puzzle to him, and its difficulty is equalled only by the question as to what becomes of them, for, he says, he never saw one who was even approaching middle age. Alluding to new advances he says, "No one ought now to die of cancer of the tongue; nothing except neglect of the early stage can bring about such a result." He lays the blame on the lack of diagnostic powers in the profession, and says he never met with a patient to whom it was kindly and confidently told "you have got cancer" who did not gladly and without delay assent to the operation. Of the breast he says, "Permanent recoveries after removal of the breast for scirrhus, as after those of part of the tongue for epithelioma, are now common in the practice of all operators." Referring to the increase of a year (from four to five) in education of students, he states that it appears to partake too much of the faith that if you only keep a horse long enough at the water you can make him drink. The additional year must make medical education more expensive and may possibly hinder some of precisely the class which it is wished to attract.

A Modification of the Operation of Enteroplasty for Simple Stricture of the Intestine.

Mayo Robson (*Lancet*, August 3, 1895) claims the following advantages for his procedure by the use of a decalcified bone bobbin:

(1) Rapidity of execution, only two continuous sutures are required, one for the mucous margin, and the other for the serous.

(2) An immediately patent and efficient channel, preventing tension above the newly-joined gut. And

(3) Protection to the line of sutures until the lymph has become partly organized.

The history is given of a girl, aged 16 years, with a simple stricture of the intestine, and a fecal fistula above it. The gut was isolated and brought out of the abdominal wound and the stricture cut lengthwise. The author's decalcified bone bobbin (resembling an ordinary spool) was then inserted and the wound closed transversely with two rows of sutures. Recovery was prompt and satisfactory, the superficial wound healing by granulation.

THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D., AND ARTHUR A. STEVENS, M.D.

Uranium Nitrate in Diabetes.

West (*British Medical Journal*, August 24, 1895) states that he has used uranium nitrate with considerable success in three cases of diabetes. The first case was a boy, aged 21 years, who had complained of thirst, loss of flesh, and frequent micturition for a period of six weeks. The urine was of high specific gravity (1036) and was loaded with sugar. The patient was dieted and kept in bed. This general treatment effected considerable improvement: five pounds in weight were gained, and the percentage of sugar fell from 9 to 6 per cent. Having got the patient into a condition of more or less equilibrium uranium nitrate was administered at first in one- and two-grain doses three times a day, and subsequently, when it was found that it could be tolerated by the stomach, in doses of fifteen grains three times a day. After six weeks of treatment the patient had gained five or six pounds in weight, the urine had fallen from nine and a half pints per day to between two and three pints, and the percentage of sugar from 6 to 3.5. A suspension of the drug was soon followed by a return to the previous condition. Uranium nitrate was again administered, this salt being sometimes replaced by a double chloride of uranium and quinine, and after ten months of treatment the percentage of sugar was reduced to 2 and the quantity of urine to fifty ounces. At this time the patient left the hospital, stating that he felt well and strong. Three months later, having been without medicine in the interval, he returned, stating that he did not feel so well.

The second case was a married lady, aged 46 years, who for the last six months had been suffering with all the symptoms of diabetes. Under uranium nitrate, four grains thrice daily, the quantity of urine was reduced from 1625 cubic centimetres to 1300 cubic centimetres, the specific gravity from 1034 to 1018, and the percentage of sugar from 2.4 to less than ½ per cent. This improvement lasted nine months, when a slight relapse was brought on by irregularities in diet and domestic troubles. After an attack of influenza, which still further increased the diabetic symptoms, treatment was not resumed. At present she is in much the same condition as she was two years ago, when the treatment with uranium was commenced.

The third case was a woman, aged 36 years, who had been treated in the ordinary way for diabetes for many weeks before she was placed upon uranium. Under this treatment the quantity of urine averaged six pints, the specific gravity between 1035 and 1040, and the percentage of sugar 7. Uranium nitrate was administered in ascending doses until the patient took twenty grains a day. Within a month the urine fell in quantity to three pints, the specific gravity to 1030, and the percentage of sugar to 4; the total amount of sugar passed per diem having fallen to one-quarter of what it had been prior to the administration of the uranium.

These cases, the author believes, taken together with several others not systematically observed, point to the conclusion that we have in uranium a drug which has a powerful effect upon diabetes. When the drug is given in small doses, gradually increased, well diluted with water, and after meals, it causes no gastric disturbance. Albuminuria did not occur even after prolonged administration of the uranium.

Trional as a Hypnotic and Sedative.

Spitzer (*Wiener klinische Wochenschrift*, No. 23, 1895) has employed trional in twenty-five cases, illustrating various diseases attended with pain and insomnia. In nineteen cases, including intercostal neuralgia, uterine cancer, lumbago, myelitis, bronchitis, emphysema, fatty heart, mitral disease, pulmonary and laryngeal tuberculosis, and locomotor ataxia, the drug proved efficient. In six cases trional failed or was insufficient in itself; in this group were included phthisis, myoma of the uterus, and arterial sclerosis. The author believes that trional is a valuable hypnotic in cardiac and pulmonary diseases as well as in mental disorders. He believes it to be especially useful in neuralgia, sciatica, lumbago, and the pains of locomotor ataxia. In these conditions he believes it to be almost as useful as morphine. It produced no disturbance of the heart or respiration, and in a few instances only did it cause nausea or vomiting. Sleep generally follows speedily after the administration of trional, and in most cases lasts through the night.

Ferratin.

Marfori (*Archiv. Ital. de Biol.*, Tome xxiii, Fasc. I–II) publishes the results of some recent experiments upon the absorption of ferratin and its physiological action. He states that the quantity of ferratin that can be absorbed depends largely upon the condition of the mucous membrane of the gastro-intestinal tract. Sulphuretted hydrogen, which accompanies putrefactive processes in the intestine, slowly decomposes ferratin, and so reduces the amount capable of being absorbed. The large amount (13.7 to 41.68 per cent.) that occurs after administration of saline purgatives Marfori ascribes in part to the aseptic condition of the bowel, and in part to the fact that the saline purgatives cause a desquamation of the upper layers of the intestinal epithelium, and therefore expose a thinner layer of young cells through which absorption more readily takes place. When the gastro-intestinal canal is in its normal condition the absorption of ferratin is much less according to Schmiedeberg, but since the latter's experiments render it impossible to distinguish between the iron of the ferratin and the iron introduced in the food, Marfori proceeded as follows: He administered to the animal a saline purgative, and fed it solely upon milk; the lower part of the intestine was also cleared of saline enemata. About a week later ferratin was given in repeated doses. The amount absorbed varied between 11 and 30 per cent. of the amount administered. With reference to the question whether ill-effects might not arise from long-continued administration of the drug, Marfori found that it was impossible to poison animals by injecting large doses into the blood, nevertheless a man would need to take about two and a quarter pounds of ferratin in the course of a month to produce a similar result, assuming as a basis for calculation experiments on dogs. Since he would actually, however, only receive about one-twentieth of that amount, there is no danger in continued administration of the drug, a statement confirmed by clinical experiments.

Serumtherapy.

Schaeffer (*Archive générale de Médecine*, August, 1895, and *British Medical Journal*) discusses the present position of the serum treatment after referring to the researches upon which it has been built up.

(1) *Tuberculosis.*—Richet and Héricourt were the first to treat the disease with serum obtained from refractory animals, but up to the present moment no very good results have been obtained.

(2) *Rabies.*—Serum treatment does not appear to have a great future as immunization by intensive vaccination gives greater success.

(3) *Pneumonia.*—After referring to the investigations, the author observes that the serum treatment deserves to be considered. The reason that it has not been more generally adopted is probably on account of the difficulty of obtaining the serum from immunized rabbits.

(4) *Enteric Fever.*—Here the clinical application of laboratory facts has not given any very good results. This may be partly due to the length of time between the penetration of the poison and the treatment, and partly possibly owing to mixed infections.

(5) *Typhus.*—The injection of serum from patients who had suffered from typhus was adopted with good results by Legrain in an epidemic in Algiers.

(6) *Cholera.*—The cholera peritonitis of animals is very different from cholera in man. Behring recently announced that he had obtained a curative serum, but the results have not yet been published.

(7) *Syphilis.*—The serum from the dog and lamb have been employed, and sometimes with good results.

(8) *Streptococcus Infection.*—Animals have been vaccinated against this infection. The serum so obtained has been used in puerperal fever with good results. It has also been employed in erysipelas and angina.

(9) *Cancer.*—The results as yet obtained are insufficient to carry conviction.

(10) *Tetanus.*—Well-marked tetanus is very difficult to cure in animals, and thus it is not to be wondered at that the results obtained in man are not conclusive. The serum, however, provides a valuable prophylactic against tetanus.

(11) *Diphtheria.*—It is in this disease that the serum treatment has registered its greatest triumphs. Where mixed infections exist the results have naturally not been so favorable. The slight accidents caused by the treatment are to be disregarded in view of its remarkable efficacy.

The author then refers to the successful application of the serum treatment to snake-bites. The general results thus far obtained by the serumtherapy promise a successful future for this new method of treatment.

Brewers' Yeast in Diabetes.

Cassaët (*Semaine médical*, August 21, 1895) states that he has obtained good results in three cases of diabetes by the administration of brewers' yeast in daily doses of fifty grammes, although the administration of the substance could not be continued sufficiently long on account of the practical difficulty in summer of preventing acetous or putrid fermentation. It was taken readily by the patients. The immediate effect was the expulsion, during the few minutes following its absorption, of a very large quantity of gas by eructation; then in the course of the first or second day, extremely fetid diarrhea with abundant gas occurred. After a few days, tolerance was established, and the patient felt better than he had done for a long time, his general state improved, his appetite returned, his strength increased, and pain diminished. The weight of the three patients in whom the treatment was tried increased three, five, and eight pounds respectively, after the yeast had been administered a fortnight. The gain in weight was particularly remarkable, inasmuch as one of them was phthisical as well as diabetic, and another had diabetes of the greatest type. On discontinuing the treatment loss of weight was soon observed again. As regards the urine, the urea remained stationary or increased, and the proportion of sugar diminished, in one case by three-fourths, and in another by two-thirds in the fortnight.

OBSTETRICS.

UNDER THE CHARGE OF

BARTON COOKE HIRST, M.D.,

ASSISTED BY

RICHARD C. NORRIS, M.D., AND FRANK W. TALLEY, M.D.

Subcutaneous Emphysema during Parturition.

Ulrik (*Ugeskrift for Läger*, 1895) observed a case of subcutaneous emphysema suddenly appearing during parturition. The patient was 28 years old; had been in labor for ten hours. One twin was born, after which the pains again resumed. On bearing-down she suddenly ceased, and her face became swollen. The second twin was extracted with forceps, the face of the mother being then so swollen that the eyes could hardly be opened. The swelling extended to the upper part of the chest and back, the front and upper portion of the head being normal. Loud crepitation was heard when the swelling was touched, thus proving it to be caused by subcutaneous emphysema. Complete recovery took place in seventeen days.

A Case of Sextuplets.

Vassali (*British Gynecological Journal*, August, 1895) has recorded the birth of six children at one birth. The patient, who was 36 years old, grew anemic and weak in the early months of her pregnancy, and complained of chilly feelings. She did not feel motion. In the fourth month the abdomen was as large as that of a normal pregnancy at term, and the woman daily expected confinement. On the one hundred and fifteenth day of gestation the membranes ruptured while straining at stool, and a foot prolapsed. Before this she had experienced no pain. A fetus was delivered. The next morning pains began, with chills, flowing, rise of temperature, and vomiting, and it was decided to terminate her pregnancy. The membranes were ruptured, a foot brought down, and a second fetus was delivered. A third bag of membranes presented, and a third fetus was delivered, and so on till the fifth. The process lasted two hours, when an endeavor was made to hasten what was thought to be the third stage of labor, but the attempt to remove the placenta revealed a sixth amniotic sac and fetus. All the fetuses were born alive and moved vigorously. The sexual organs were differentiated, four being males and two females. The large single placenta bearing the six amniotic sacs, was unfortunately so lacerated that further investigation was useless. The specimen is preserved in the museum of the Obstetrical School at Milan.

Sacral Tumor in the Fetus.

G. Anderssen (*Norsk Magazin for Läger*, p. 122, 1895) reports a case of labor at term in which the fetus could not be extracted, although the lower extremities were delivered. Upon examination it was found that a tumor was attached to the sacral region by a pedicle as thick as the wrist. The tumor was hard and lumpy, but with some soft parts. It was opened and about a pint of greenish fluid evacuated. Delivery was then readily accomplished. The tumor weighed three pounds after the fluid contents had been evacuated, and was about the size of the trunk of the fetus. It contained a number of cavities filled with colloid substance and also some cartilage.

Eclampsia of Pregnancy with Amaurosis.

Rabczewsky (*Przeglad Chirurgiczny*, Vol. II, Part 3, 1895) has observed an instance of convulsions during pregnancy, in which every fit was regularly preceded by transitory amaurosis, as well as by edema of the face, which was also of short duration. Two sets of convulsions occurred during pregnancy, the first about the end of the seventh month, four attacks taking place within twenty-four hours; the second in the course of the eighth month, when two fits were observed. After the last convulsion a healthy child was delivered. The mother made a good recovery. The two prominent symptoms above mentioned developed before each of the six fits, which took place at two epochs of pregnancy. Olshausen has been able to collect only three cases of eclampsia in which the fit was preceded by an aura, as was this case.

Why does the Fetus Present by the Cephalic Extremity?

Dr. Anstruther Davidson (*Glasgow Medical Journal*, June, 1895) considers this question and attempts its answer. He thinks that Simpson's theory is pretty doubtful yet, and believes that the ovoid shape of the uterus has little effect upon the presentation of the fetus, indeed, that the uterus is compelled by the position of the fetus to assume that shape. Both the theories of "gravitation" and "adaptive action" are inadequate. Dr. Davidson bases his idea upon the observations of the larvæ of the hymenoptera. These larvæ always turn their heads to the natural outlet. In the human subject the mothers whose fetuses presented otherwise than by the head would, in the savage state, gradually die out. "The cephalic presentation, whether at first an accident or an inheritance from the lower forms of life, as seems the more probable, is instinctive in the fetus now." The author therefore thinks that the cephalic presentation has become the normal one for the higher mammalia by a process of natural selection.

The Treatment of Uterine Hemorrhage during the last Two Months of Pregnancy.

Dr. W. J. Smyly (*British Medical Journal*, No. 1776, 1895) calls attention to the fact that uterine hemorrhage, occurring during the last two months of pregnancy, may result from a wound or disease. In the majority of cases it is due to premature separation of the placenta. Those placental hemorrhages which proceed from the normal site are distinguished as accidental, and those from an abnormal site as unavoidable. All cases in which the placenta dips down below the contraction ring should be considered anatomically as examples of placenta previa. Clinically, the majority of them cannot be diagnosed as such, and are therefore classed among accidental hemorrhages.

The diagnosis of placenta previa depends upon hemorrhage occurring towards the end of pregnancy or the commencement of labor, and feeling the placenta through the cervix or os uteri. It is difficult to account for the hemorrhages which occur before labor begins. They may possibly be due to a disproportion between the placental site and the placental area. When commencing with labor, they are due to the physiological process by which the ovum is separated from the lower part of the uterus. The lower uterine segment is hemispherical at the commencement of labor, and is occupied by the presenting part of the fetus through which it directly receives the uterine pressure, and over which it is directly drawn upward, being converted, as the os dilates into a cylinder, equal in circumference to the presenting part of the child. The bag of water is, at the same time, pressed down

into the cervical canal, which it dilates, as it does also the external orifice. So long as the membranes remain intact, the ovum is driven down by the uterine contractions, the lower segment being drawn upward at the same time. A separation takes place between the two, and the lower pole of the ovum is cast free from its uterine connections. This separation begins at the os internum and gradually extends upward towards the contraction ring.

When the membranes rupture, however, the fetus only is driven downward, the membranes being drawn upward, with the uterine wall to which they are attached. If the placenta, which is a specially modified portion of the fetal envelopes, should be developed at the lower pole of the ovum, it will be separated with the latter and hemorrhage occurs. More vessels are opened as the detachment extends, but as the detachment may cease with the rupture of the membranes, so may also the bleeding.

Smyly sums up the treatment of accidental hemorrhages as follows:

(1) When the os is small and labor-pains weak or absent, preserve the membranes intact as long as possible; in external hemorrhage plug the vagina.

(2) If labor be well advanced rupture the membranes, and if hemorrhage continue, deliver by the safest method available.

(3) For internal concealed hemorrhage, and in some cases of external hemorrhage, if a vital necessity, deliver by accouchement forcé or Porro's method.

In all cases the ruling principle should be to proceed with as little force and precipitation as possible.

Electrical Treatment of the Vomiting of Pregnancy.

Gautier (*Archives de Tocologie et de Gynécologie*, January, 1895) advocates the employment of the voltaic current in the vomiting of pregnancy, having cured twenty cases by this method. The positive pole is applied over the pneumogastric, phrenic, and sympathetic nerves, above the right clavicle, between the two insertions of the sterno-mastoid; the negative of the level at the umbilicus. The current is descending, of light intensity, and long duration. An ascending current provokes vomiting, while a descending current relieves it. A strength of eight to ten milliampères on an average is sufficient, and care must be taken to make and break the circuit gently, by using a rheostät or a battery from which single cells can be cut out. Each application should last from one-quarter to one-half hour.

Twin Pregnancy with Fetal Mummification.

Dr. Ulecia (*Archivos de Ginecopatia, Obstetricia, y Pediatria*, Barcelona, June 10, 1895) summarizes a case of twin confinement with mummification of one fetus reported by Dr. Cabréra, of Habana. The mother, a 23-year-old multipara, developed purpuric spots at the fifth month of pregnancy. These disappeared under treatment with iron, but later signs of antepartum septicemia occurred. The fever continuing despite treatment, labor occurred prematurely. After the birth of a living fetus, there was placental retention with syncope. The placenta was extracted manually, and with it came a mummified fetus of six months. The placenta was single and gave insertion to the two umbilical cords. An intra-uterine antiseptic injection was given, but signs of post-partum septicemia appeared. These, however, were overcome and the patient recovered. The living fetus died some hours after birth from tetanus.

GYNECOLOGY.

UNDER THE CHARGE OF

CHARLES BINGHAM PENROSE, M.D.,

ASSISTED BY

H. D. BEYEA, M.D.

Resection of the Ovary.

Matthei (*Zeitschrift für Geburtshülfe und Gynäkologie*, Band xxxi, Heft 2) reports six cases operated upon in the Berlin Gynecological Clinic, where a large ovarian tumor was removed from one side, and the ovary on the opposite side was found partially diseased and was resected. Therefore only that part of the second ovary was removed which microscopical study has as far as possible shown to be diseased tissue. The patients were between 18 and 35 years of age. The wound in the remaining portion of ovary was repaired by suture. Five of the six patients were married, and each has since borne a living child. Matthei believes that ovarian resection is indicated when the second ovary contains retention cysts which are not too numerous and which can be emptied by ignipuncture; also where there is a small dermoid or proliferating glandular cyst. The second ovary should in every instance be removed when the woman is at or near the menopause, or where the ovarian disease is thought to be malignant.

Celiotomy with and without Drainage.

Czempin (*Monatsschrift für Geburtshülfe und Gynäkologie*, Supplement to Band ii, 1895), in a very complete paper upon drainage after celiotomy, refers to the great fluctuations of opinion of authoritative operators, and notes that drainage is being less and less employed each year. He refers to the method advised by Sänger (the glass drain) and Mikulicz (the iodoform gauze drain), and also to the indications for drainage as pointed out by Veit, Olshausen, and Martin. He notes that Sänger employs this form of drainage no more; that he has practically discarded drainage; that Veit believes the indications are very few; and that opinions are so varied that there are no fast rules to follow in any particular case. Czempin, through a period of nine years of operative work, has at times followed the advice of each of the above investigators, and has carefully studied the subject. He has found that each year fewer cases require the drainage-tube. From his observations the cases in which drainage may be indicated are divided into two great groups. *First*, operations upon non-infectious tumors with unfavorable complications, caused by the condition of the relations of the operation wound. *Second*, operations upon infectious tumors or those thought to be infectious, and operations complicated through injury to the intestine, the escape of pus or decomposed fluid. First, complicated non-infectious operations. To this group belong (*a*) intraligamentary-developed new growths resulting in the necessary extensive separation of the pelvic connective tissue; (*b*) where the new growth has extensive adhesions with neighboring organs and the parietal peritoneum, therefore necessitating extensive injury to the peritoneum. Under these headings the writer reports a series of cases with results which vary too much to be of practical use. In the first group, the separation of the pelvic connective tissue and the extensive wound results in the forming of the best culture medium for infectious organisms, and that infec-

tion takes place either through faulty technique, infection from without, or through intestinal bacteria, the result of injury to the intestine. He says that it is doubtful whether drainage does good in these cases; that the resulting exudate is quite as readily absorbed and eliminated by nature. As regards the second group of cases, he refers to the statistics of Zweifel of 103 adnexa operations, with one death, where the rubber drainage-tube was employed, but says it proves nothing. The method of Shauta, Wertheim, and Fritsch (the microscopical examination of pus during operation) he believes has the correct object, but is not positive; that the organisms may not be virulent, they may be few in number and not found, and a certain number of cases are thus unnecessarily drained. The use of drainage complicates the operation, often causing suppuration in the abdominal wound, fistula, and hernia. Finally, he concludes that *the results in complicated celiotomy is only rarely improved by the use of drainage, and that in the greater number of cases where it is used it is not essential.* If virulent organisms are present, it can scarcely save life; if the virulence is extinct, it is not necessary. Where in the removal of a non-infectious new growth the pelvic connective tissue is separated, drainage is not only unnecessary, but often does harm. Where there is a closed off acute inflammatory process in a tumor in the peritoneal cavity and in its removal pus escapes into the peritoneal cavity, infection is to be feared. Particular caution should be taken that the least amount of the peritoneum is infected, and the material should be carefully removed with the sponge. The use of the iodoform gauze tampon does not physically or chemically influence the result. The opening of acute inflammatory connective tissue in adnexa operations is very dangerous. Whether drainage can save the patient's life is questionable. In such cases he believes complete hysterectomy gives the best results. In adnexa operations he advises that the operation be performed six months after the last exacerbation. In cases in which the pelvic connective tissue is widely separated in the removal of a tumor (hematoma of the broad ligament) drainage is not necessary. In very difficult operations, where the pelvic connective tissue is widely separated and the case is septic, the best results are gained by complete hysterectomy and drainage with iodoform gauze through the vagina.

The Results of Abdominal Hysteropexy and its Influence upon Pregnancy.

Léon (*Province Méd.*, No. 6, 1895) writes that the results of abdominal hysteropexy shown in the paper published by Laroyenne, that pregnancy occurring after this operation is usually followed by abortion, is due to faulty technique, the method of placing the sutures between the abdominal wall and the uterus. Léon gives the following rules to be observed in this operation:

(1) The sutures should not be removed.

(2) The number of sutures should be sufficient.

(3) The sutures should be placed through the anterior wall of the uterus and not the fundus.

(4) The sutures should include sufficient tissue; at least one-half centimetre.

From the observations of Laroyenne and the greater number of French surgeons, the adopted technique of the operation does not allow the physiological growth of the uterus during pregnancy, and, besides, the adhesions are not firm enough. Of sixty cases operated upon by Laroyenne, three became pregnant; of these one proceeded to full term and two aborted in the first month. The writer believes that abortion in these cases was induced early in pregnancy because the fundus and not the anterior uterine wall was sutured.

As Regards the Origin of Pelvic Hematomata after Oöphorectomy.

Schramm (*Centralblatt für Gynäkologie*, No. 34, 1895), at a meeting of the Dresden Gynecological Society, June 11, 1895, read a paper upon the origin of pelvic hematomata after oöphorectomy, and reports a case. He at first refers to the hemorrhage which occurs two or three days after the removal of the uterine appendages as a possible cause of infiltration of blood in the broad ligaments. He condemns the theory of Olshausen that it is the result of the establishment of collateral circulation after the removal of ovarian tumors, for he has seen it occur most frequently after simple oöphorectomy. In one instance the hemorrhage was so profuse that the uterus had to be tamponned and hypodermics of ergot given. Hemorrhage occurring in the extraperitoneal cellular tissue he believes must be very rare, since not a single case can be found reported in the literature. Schramm reports the following case: A domestic, 27 years of age, presented herself at the clinic, complaining of severe pain, occurring during defecation, in the left ovarian region. On vaginal examination the left ovary was found prolapsed, freely movable, and enlarged to the size of a hen's egg. Celiotomy was performed and this ovary removed. For the first seven days after operation convalescence was normal. On the eighth day the patient had retention of urine, and complained of pain in the left side. In relation with the uterus on this side a tumor the size of an apple could be felt, which during the next day rapidly enlarged, reaching the size of a double fist. It was a fluctuating tumor, and displaced the uterus forward and to the right. A diagnosis of hematoma of the broad ligament was made, and it was punctured through the vagina. A pint of degenerated blood was removed. The opening was enlarged and a drainage-tube inserted. After this operation the patient was much relieved, there was no fever, and micturition became normal. After twenty-four hours the hemorrhage ceased, and therefore the drainage-tube was removed and the opening closed. The hematoma cavity filled anew, and again it was punctured and a pint of blood escaped. The sac was then tightly tamponned with iodoform gauze, which controlled the hemorrhage. The gauze was removed after forty-eight hours, and a glass drainage-tube was inserted, through which the cavity was daily douched with a 3-per-cent. boric acid solution. Convalescence now proceeded without complication, and the patient left the hospital in good health. In the discussion of this paper, Leopold believed that this hemorrhage was due to the fact that during the operation a vein had been torn and not included in the ligature. Schramm said this was impossible, since the pedicle was so long, the ligature so complete, and the hemorrhage was of recent date. Bode remarked that he had two or three times seen extensive hemorrhage occur in the broad ligament after oöphorectomy in which the expectant plan of treatment was followed and the patient recovered.

The Cause of Death after Celiotomy.

Thiercelin and Jayle (*Centralblatt für Gynäkologie*, No. 34, 1895) report seven deaths occurring in the first few days after celiotomy, in which the post mortem did not show the least sign of peritonitis, but acute fatty degeneration of the liver. They conclude that the fatty degeneration of the liver was in every case due to septic infection; that the general infection occurred so suddenly and advanced so rapidly that there was not sufficient time for local lesions or symptoms to develop.

PATHOLOGY.

UNDER THE CHARGE OF

JOHN GUITÉRAS, M.D.,

ASSISTED BY

JOSEPH McFARLAND, M.D.

Bacteriologic Studies of the Dejections in Typhoid Fever.

Wathelet (*Annales de l'Institut Pasteur*, April, 1895) made cultures from the dejecta of twelve cases of typical typhoid fever, examining fifty-one specimens of feces. Of 600 colonies studied, the bacillus of Eberth was found in only ten. In eight patients the bacillus was never present in the fecal discharges. The bacillus coli was nearly always present. The rarity of the typhoid bacillus in the intestine is strange, when we reflect that it is practically always present in the spleen, while the reverse is true of the bacillus coli. This fact has led Sanarelli to maintain that the bacillus first invades the lymphatic system (spleen, mesenteric glands) and passes only accidentally through the intestinal wall into the feces. Others have assumed the possibility of a transformation of the bacillus coli into the bacillus typhosus. In another series of experiments Wathelet has been able to demonstrate a marked antagonism between the two bacilli,—if the two are planted together, even if the quantity of typhoid bacilli is much larger, the medium will in a few days be found to contain only bacillus coli. The latter bacillus also grows on the filtered bouillon of a typhoid fever culture, while the bacillus typhosus not only does not develop in a filtered culture of bacillus coli, but is speedily killed. This seems to accord with the clinical observations. The theory of Sanarelli best explains the facts, with the exception that it does not elucidate why the bacillus coli is regularly absent from the spleen of the bodies of typhoid fever patients, when it is so common in a variety of other affections.

Amyloid Degeneration produced Experimentally.

Krawkow (*Centralblatt für allgemeine Pathologie und pathologische Anatomie*, May 20, 1895, Band VI, No. 9) has been able to produce a typical amyloid degeneration by the subcutaneous injection of staphylococcus pyogenes aureus. Rabbits and hens are best adapted for the experiments. The first injection produced an elevation of temperature and an abscess; later injections were not followed by either a local or a general reaction. The animals emaciated rapidly, developed albuminuria, and died in from one and a half to two months, after suffering a loss in weight amounting to 50 per cent. In eight out of twelve rabbits amyloid degeneration was found in different stages, and giving all the reactions of human amyloid. The iodine reaction was not constant, while that with the aniline dyes never failed. The author is, therefore, inclined to consider the latter as the most delicate. The degeneration in the rabbit begins in the spleen; the next organs to be affected are the salivary glands. The bone-marrow was never affected; nor could amyloid be demonstrated in the nervous system or the blood. The degeneration affected especially the adventitia of capillaries (not the endothelium), the walls of the smaller arteries, and the connective tissues (membrana propria of glands). Very peculiar was the appearance in the spleen of giant-cells, which contained large amounts of amyloid material. Amyloid degeneration sets in very rapidly in the rabbit;

in some cases it was demonstrable macroscopically with iodine in the spleen after eleven days. After the removal of the spleen in birds (chickens), amyloid degeneration developed as before, the bone-marrow in these cases being also not affected. It was not possible to produce amyloid in dogs; frogs were also refractory. Regarding the causation of amyloid degeneration, the author states that so far he has only been able to produce it by means of certain micro-organisms. Subcutaneous suppuration caused by turpentine, although kept up until the animals died of inanition, failed to produce the degeneration. The inanition that followed the suppuration in the author's cases cannot be considered the cause of the degeneration, since the latter was found in animals that were wellnourished. It is more probable that the inanition is due to the same cause as the degeneration, and in part also to the latter, when the degeneration attacks important organs, as the liver, kidneys, spleen, etc. Amyloid, the author believes, is a product of the life-activity of the micro-organisms. Besides being produced by staphylococci, amyloid can also be formed, but in far less amount, by the putrefactive organisms; the bacillus pyocyaneus and the cholera spirillum did not produce it. Since the pyogenic and putrefactive organisms have thus been shown to cause amyloid degeneration, the question arises, Is the amyloid degeneration seen in tuberculosis and syphilis due to these diseases or to mixed infection with pus-organisms and saprophytic germs?

THE TREATMENT OF DIPHTHERIA WITH ARTIFICIALLY PREPARED ANTITOXIN.

SMIRNOW (*Berliner klinische Wochenschrift*, Nos. 30 and 31, July 29 and August 5, 1895).

If a diphtheria bouillon or serum culture is subjected to electrolysis, the fluid at the positive pole becomes strongly alkaline, that at the negative pole strongly acid. If the two fluids are separated and neutralized with HCl and NaOH respectively, they not only lose their toxicity, but even acquire an immunizing power. To transform 200 cubic centimetres of toxin into antitoxin of such strength as to protect a rabbit against from 0.5 to 0.7 c. c. of a two or three days' old diphtheria culture, it requires a current strength of eighty milliampères, passing from sixteen to eighteen hours. The author's experiments were made primarily on rabbits, animals that naturally possess a certain degree of immunity; when the antitoxin obtained in the manner indicated was applied to guinea-pigs, it was found devoid of immunizing properties; indeed, in some instances, death was more rapid than in the control animals. After many trials it was found that to obtain an antitoxin suitable for guinea-pigs, the toxin had to be subjected to electrolysis for a shorter time than was necessary in the case of rabbits. It is best to determine the proper duration of the electrolysis by estimating the degree of acidity at the negative pole with normal NaOH solution. For rabbits an acidity of from 1.6 to 1.8, for guinea-pigs one of from 0.9 to 1.2, indicates a serum of immunizing power. But while this serum invariably protected rabbits, it was not able to save guinea-pigs from eventual death, although it caused them to live much longer than the control animals. Finally, the author succeeded in producing an antitoxin capable of protecting guinea-pigs against a fatal dose of diphtheria toxin, by adding sufficient sodium chloride to the antitoxin to make a solution of the same strength as the original toxin (½ per cent.). As the antitoxin is more potent the stronger the toxin from which it is derived, it is important to prepare as powerful a toxin as possible. Veal bouillon was found to yield the strongest, horse-flesh bouillon the weakest toxin. The reaction of the medium is also an important factor.

While the action of the artificial antitoxin is similar to that of the antitoxin

obtained from immunized animals, it is noteworthy that, differing from the latter, an excess is distinctly injurious, and must be carefully avoided. Experiments on guinea-pigs have shown that the antitoxin itself is not innocuous; the injection of ten cubic centimetres killed a guinea-pig in three days and produced all the lesions seen after death from diphtheria toxin. It is, therefore, evident that the antitoxin obtained by electrolysis is nothing more than an attenuated toxin, the toxicity of which is diminished proportionately to the duration of the electrolysis.

We give some of the author's general conclusions, which in part are based on experiments previously published:

(1) The micro-organisms of diphtheria develop their specific poison only in serum-albumin and albumoses; in globulins they multiply, but produce no poison, and lose their virulence.

(2) By means of electrolysis an antitoxin can be prepared from the diphtheria poison, which cures, even in later stages, rabbits and guinea-pigs inoculated with cultures of the diphtheria bacillus.

(3) In the electrolysis of the toxin, the decomposition of the salts, as well as that of the albumins, must be taken into account, and the fact noted that the antitoxin develops its curative powers only when the composition of the salts is approximately the same as in the original toxin.

(4) An antitoxin which is to be used for rabbits must be subjected to a longer electrolysis than that intended for guinea-pigs.

(5) The determination of the duration of the electrolysis is best made by estimating the acidity at the negative pole. By this means it has been found that the antitoxin cures guinea-pigs with the greatest certainty, when after electrolysis it possesses an acidity of from 0.9 to 1.3,—*i.e.*, when 0.9 to 1.3 cubic centimetres of normal NaOH solution neutralize one cubic centimetre of antitoxin; while for rabbits the electrolysis must be continued until the acidity is from 1.5 to 1.9.

(6) The changes which electrolysis produces in the toxin, and which give to it its curative property, proceed more actively at the negative than at the positive pole.

(7) The artificial antitoxins possess the same properties as the serum of immunized horses, with the difference that their action depends in the highest degree on the dosage, and that every excess is harmful. The antitoxin so far produced is of such strength that one-half to one cubic centimetre, according to the size of the animal, injected sixteen or eighteen hours after the animal has been inoculated with 0.1 cubic centimetre of a culture, produces a cure.

(8) Natural immunity or susceptibility to diphtheria is most probably dependent on a varying quantitative relation of the albumins and globulins in the blood serum.

(9) In the treatment of animals with artificial antitoxins certain chemic relations, as yet obscure, play a more important part than phagocytosis.

Although the studies are not yet completed, the author believes that the application of artificial antitoxins for the cure of diphtheria in man is a possibility, and that with certain precautions every toxin can be transformed into an antitoxin by means of electrolysis.

DERMATOLOGY.

UNDER THE CHARGE OF

LOUIS A. DUHRING, M.D.,

ASSISTED BY

M. B. HARTZELL, M.D.

A New Species of Gangrene of the Skin accompanied by a Pustular Eruption.

Rotter (*Dermatologische Zeitschrift*, Bd. II, Heft 4, 1895) reports a case of gangrene of the skin which differed in its clinical features from any of the hitherto described cases of this disease. The patient, a well-nourished, healthy man, 23 years of age, noticed a small "pimple" upon the inner side of the right leg at the junction of the middle and upper third, which enlarged rapidly, the skin around it becoming black. Within a few days a gangrenous area the size of the hand had formed, which was removed with the forceps and scissors, leaving an ulcer extending down to the fascia. The gangrenous process continued to spread downward until an ulcer was formed, reaching from the head of the tibia to the internal malleolus, and from the crest of the tibia in front to the middle of the calf behind. A week after the beginning of the disease pustules began to appear on various parts of the leg and thigh, some deep, others superficial; these continued to appear for some months. Examination of the pus from the surface of the ulcer and from the pustules revealed the presence of a special bacillus. Pure cultures of this bacillus reinoculated into the skin of the patient produced lesions similar to those from which the bacillus had been obtained originally.

Keratic Acne.

Tenneson and Leredde (*Annales de Dermatologie et de Syphiligraphie*, No. 4, 1895), under this title, describe an unusual and remarkable form of acne. The patient was a man 26 years of age, a cab-driver by occupation, who suffered from an ordinary acne seated upon the back, the shoulders, the anterior part of the thorax, and the face. In addition to these papules, pustules, and comedones, there were upon the posterior part of the shoulders and the trunk large surfaces covered with small corneous elevations which occupied the infundibula of the hair-follicles. These irregular, asymmetrical surfaces were limited upon the side of the median line by a sharp outline clearly marked against the sound parts, this outline being polycyclic. These corneous elevations, while close together, were quite distinct, and gave to the hand the sensation of a rasp. They were the size of a millet-seed and grayish in color. The surrounding skin was normal in color. A plaque of the same nature occupied the lumbar region, and less extensive ones were seated upon the anterior part of the shoulder and in the presternal region. Others still smaller were in the face. All these plaques were irregular in shape, and the lesions of ordinary acne were scattered irregularly over and around them. While the lesions resembled to the naked eye those of keratosis pilaris, the regions commonly affected by this disease were entirely free. A microscopical examination of the lesions showed that the pathological alterations were limited entirely to the pilo-sebaceous apparatus. The entire hair-follicle was sheathed in migratory cells, most abundant around the vessels, which were dilated and contained an abnormal quantity of white cells. The

follicles themselves were not affected, except that here and there some isolated migratory cells had penetrated between the epithelial cells. Where the follicle entered the epidermis, the papillæ in the immediate neighborhood were slightly enlarged and showed traces of diapedesis.

A Case of Arsenical Keratosis.

Payne (*British Journal of Dermatology*, August, 1895) reports the case of a man, 48 years of age, who, in consequence of the long-continued use of arsenic, presented the following condition of the palms and soles. The palm of the right hand showed numerous elevated patches of thick, hard epidermis, from one-eighth to nearly one-fourth of an inch in diameter, resembling corns. They were situated chiefly on the palm and the palmar aspect of the fingers, also along the outer margin of the hand, at the edge of the palm. There were a few on the backs of the hands and more on the backs of the fingers. The left hand showed a similar condition, but less extensive. Both feet were affected in a similar manner. There was a general, but not universal, thickening of the soles, and this was extending on the sides and backs of the feet, and on the heels. Pigmentation was also very marked. The face was uniformly dark, and the whole trunk was covered with mottled brown patches, which extended in a less intense form to the arms and legs. It was learned that the patient had suffered many years from psoriasis, for which arsenic had been prescribed. For ten years three minims of liquor sodii arseniatis and three minims of liquor arsenicalis had been taken three times a day. Upon the suspension of the arsenic and the use of salicylic acid in collodion and in ointment, the palms and soles began to improve.

A Pathognomonic Sign of Lichen Planus.

Wickham (*Annales de Dermatologie et de Syphiligraphie*, No. 6, 1895) describes certain grayish striæ and puncta to be found in lichen planus which he believes to be of use in making the diagnosis of this affection. While not asserting that these are to be found in every case, no exception has yet been met with; and the writer believes these to be pathognomonic of lichen planus.

Multiple Neurotic Gangrene of the Skin.

Joseph (*Archiv für Dermatologie und Syphilis*, Bd. xxxi, Heft 3) reports two new cases of this rare and interesting disease, one of them being a man, the first case reported as occurring in the male. The first case occurred in the person of a young man, 27 years of age, who was otherwise in perfect health. Two months prior to coming under observation he had burned the back of the left hand accidentally with sulphuric acid, the wound thus produced healing very slowly. Suddenly, before the complete healing of this wound, a dark gray spot appeared on the lower third of the left forearm, about the size of a three-mark piece. The patient experienced no pain, but an abnormal feeling of cold; the spot was completely anesthetic and analgesic. An eschar formed, which was gradually cast off, leaving behind an ulcer which healed in the course of four or five weeks with the formation of keloid. About every six months since the same phenomena have appeared, usually at the beginning or end of the winter. For a time the gangrene limited itself to the left arm, but suddenly the right one became affected. The second case occurred in a hysterical girl 15 years old, and presented features completely analogous to those already reported by Kaposi, Doutrelepont, Duhring, and others.

The Pathological Anatomy of Duhring's Disease (Dermatitis Herpetiformis).

MM. Leredde and Perrin, who have studied the lesions of dermatitis herpetiformis as found in that variety known as herpes gestationis, and in the commoner forms, report as follows concerning its histology:

The identity of the two forms is indisputably established by the presence in both of cells having a special micro-chemic reaction, coming from the blood-vessels of the derma and eliminated by the epidermis, and by the alteration of the blood in which one finds a certain number of eosinophilous cells.

The lesions of the derma are often limited to the papillary body, or at least are most abundant there.

Diapedesis is sometimes very intense, but may be moderate.

The migratory elements consist essentially of lymphocytes and eosinophilous cells.

Cells of a different kind, polynuclear elements, are observed when the bullæ and vesicles have matured, but more abundantly when they have suppurated; this is probably due to ordinary microbic infection.

The fixed connective tissue cells take part in the formation of the cell foci.

Edema is the second essential element of the alterations of the derma; it is more or less marked, being at times excessive, and is the result of a vaso-motor paralysis of the vessels of the derma. The edema, still more than the proliferation of the fixed cells, modifies the form of the papillæ.

Hypertrophy of the epidermis frequently occurs, but it is usually moderate in degree.

The existence of migratory eosinophilous cells between the cells of the rete is altogether peculiar, and marks the importance of these elements in the affection, and shows the tendency of the skin to eliminate them in all possible ways. The diffuse elimination of these elements by the epidermis is only accessory, the vesicles and bullæ being the essential means of excretion.

In conclusion, the authors believe that the erythema, the vesicles, and bullæ, grouped in diverse ways, are the morbid elements which reveal to the clinician a general malady, the cutaneous effects of a sanguineous alteration. This alteration, constant in the cases which they have studied, determines the elimination by the skin of eosinophilous cells in excess in the blood.

Affections of the Skin Occurring in the Course of Bright's Disease.

Pye-Smith (*British Journal of Dermatology*, September, 1895), in a paper read before the Section of Dermatology of the British Medical Association, calls attention to certain cutaneous affections which occur in the course of Bright's disease. After a mention of the erythema leve of Willan, a superficial dermatitis occurring upon the surface of skin distended by dropsy, four other varieties of dermatitis are described.

(1) A bright-red, diffused rash appearing chiefly on the trunk, less often on the neck, arms, thighs, and very seldom on the face, hands, or feet. As a rule, it neither itches nor smarts, and lasts but a few days. It is distinguished from the somewhat similar rash following natural or artificial diaphoresis, by its localization, the absence of sudamina, and by its appearing when no hot-air baths or other means to produce sweating have been employed, and when the skin is hot and dry. This form has been seen most frequently in chronic tubal nephritis.

(2) A papular eruption, with large, discrete, dark-red lesions seated on a dry,

rough, and sometimes scaly surface. It affects most frequently the outer side of the thighs and legs, the shoulders, and the extensor surface of the forearms, but may affect the loins and abdomen.

(3) A moist dermatitis resembling eczema in its aspect, but occupying the neck, the arms, or the legs, without affecting the flexures of the joints, the face, or the ears, without the irritation commonly present, and without preceding attacks of eczema.

(4) On two occasions the author has seen a very extensive and profuse dermatitis closely resembling the dermatitis exfoliativa of Wilson, very red, very scaly, occupying the scalp, palms, soles, and genitals, as well as the trunk, face, and limbs.

These forms of dermatitis are superficial, and when they disappear they leave no trace behind. They run an acute or subacute course and seldom recur. They are never pustular, but in rare instances may be purpuric. The subjective symptoms are usually slight. These forms of dermatitis are usually associated with the later stages of chronic tubal nephritis, or any of the stages of chronic granular degeneration with shrinking of the renal cortex. The treatment employed by the author has been entirely external, and consisted of soothing ointments, which he found better than lotions.

CORRESPONDENCE.

HYSTERECTOMY IN PUERPERAL SEPSIS.

To the Editors of University Medical Magazine.

Gentlemen :—The editorial in the August number of your journal upon hysterectomy in puerperal sepsis and the letter from Dr. Hirst in your September issue discuss a matter not only of great inherent importance, but also one of special importance at this time, because all of the conditions are ripe for its study and proper solution. Your editorial discusses the question in a trenchant manner, and must impress even the most indifferent with the necessity of the further study of this problem. The general propositions laid down in your editorial, it seems to me, must meet with the acquiescence of those who have studied the problems of puerperal septicemia both as obstetricians and as gynecologists. The problem under discussion is, What is to be done with an infected puerperal uterus when the methods of practice heretofore and at present recognized as appropriate in its treatment fail to bring about an improvement in the conditions present, and when in the light of our present knowledge there is every reason to believe that the woman having the infected uterus will die, as a result of the further development of the septic processes originating in the uterus ? In the cases coming under this

category, the women are acutely ill, the processes are essentially acute, and if something is not done to arrest the disease within one, two, or three days after its onset, death will result. Shall we fold our hands under these circumstances, or shall we make an attempt to rescue the patient by hysterectomy? It is evident that this is a desperate class of cases, and the mortality has been and will be high in dealing with it, but without radical surgery the outlook of such cases is hopeless or nearly so, so that certainly very little is to be lost by resorting to it. In considering this question, it must not be forgotten that, if only the most desperate cases are operated upon, the mortality will be so high as to deter even the most courageous surgeons from resorting to operation in those less desperate cases in which a reasonable prospect for success exists. Personally, I shall not operate when, in my judgment, such marked general sepsis exists as would prove fatal even if the septic uterus be removed, nor shall I operate if, in my opinion, a spreading septic peritonitis exists as a complication. On the other hand, hysterectomy certainly is not indicated in those mild cases of puerperal infection, in which the life of the patient is clearly slightly, if at all, jeopardized, even though the morbid process is not arrested by treatment within a definite number of days. Here the good judgment of the practitioner will prevent the resort to a radical operation when clearly it is not indicated. I have no doubt that it will be urged by those who oppose any change whatever in practice that this class of cases will be the one selected for operation by those whom they allege are anxious to operate. I doubt very much whether this will be the case, because puerperal hysterectomy is not a field in which any but the most courageous surgeons, actuated by the sincerest desire for the welfare of their patients, will care to take the first steps.

Dr. Hirst discusses the question of hysterectomy in the later weeks of the puerperal month. The class of cases which he refers to, it seems to me, is entirely different from that touched upon by your editorial. It is hardly necessary to point out that patients who are alive in the third and fourth weeks of their lying-in must have had only a moderately severe septic infection, otherwise they would have died within a week or ten days after labor. It seems to me that it is not so much a question of hysterectomy in this class of cases as it is one of operation for the drainage of abscesses, for the removal of the uterine appendages or of the uterus itself, as the case may be, and for localized inflammatory conditions of puerperal origin. Hysterectomy plays a very small *rôle* here, and when necessary is a mere variation in the technique of the operation for the removal of diseased uterine appendages. It is true that even three or four weeks

after labor, at times, the uterus contains pus, but relatively this condition is infrequent, and pus when present at this late period in the puerperium is usually either in the tubes, ovaries, broad ligaments, or within the peritoneal cavity.

In conclusion, then, I would insist that while operation is called for much more frequently late in the puerperal month than it is within its first week, that hysterectomy plays a very small *rôle* in the operations which are necessary at this period. There is a very broad distinction between an operation for the removal of an infected uterus within the first week of the lying-in, when the patient is in imminent danger of acute general septicemia or acute spreading peritonitis, and an operation for localized inflammatory conditions in the pelvis performed late in the puerperal month, when the conditions present are closely allied to those of operation for pus in the pelvis in non-puerperal conditions.

Very respectfully yours,

CHARLES P. NOBLE, M.D.

BOOK NOTICES.

EYESIGHT AND SCHOOL-LIFE. By SIMEON SNELL, F.R.C.S. (ED.), Ophthalmic Surgeon to the Sheffield General Infirmary, etc. Bristol: John Wright & Co. Price, *2s. 6d.*

This brochure of seventy pages, dedicated by its eminent author to his wife, has been enlarged to its present proportions from a lecture delivered before an Elementary Teachers' Association. Technicalities have been avoided as far as possible, the object of the author evidently being to awaken a wider interest on the part of non-professional readers in the important subject of the hygiene of vision in our schools. We can speak only in praise of both the design of the work and the admirable manner in which it has been accomplished. It is brief, clear, and sufficiently comprehensive for the purpose had in mind by the author. We therefore commend it unreservedly to parents, teachers, and school boards. The reviewer does not agree as to the importance of vertical writing in preventing myopia, and there is a statement made on page 2, regarding the growth of the hypermetropic eye through the intermediate stage of emmetropia into myopia, which is open to adverse criticism, but this does not in the least impair the usefulness of this excellent book to those interested in the details of school-house architecture, furnishings, etc.

System of Surgery. Edited by Frederic S. Dennis, M.D., Professor of the Principles and Practice of Surgery, Bellevue Hospital Medical College, etc.; assisted by John S. Billings, M.D., Deputy Surgeon-General, United States Army. Vol. II. Philadelphia: Lea Brothers & Co., 1895.

The second volume of this work begins with a chapter on minor surgery by Dr. H. R. Wharton. It is probable that no work on surgery would be considered complete without a careful exposition of transfusion of blood and acupressure, although, perhaps, neither of these procedures is employed at the present time. The intravenous injection of saline solution is described, and should replace transfusion altogether. It possesses all the merits of the latter without any of its disadvantages, and should be employed more frequently in shock from loss of blood than has heretofore been done.

The chapter on plastic surgery is contributed by Dr. George R. Fowler. In addition to the description of the many classical plastic operations, the subject of bone-grafting is discussed, and a preference expressed for the use of decalcified bone.

Military surgery and the care of the wounded on the battle-field are described by Lieutenant-Colonel W. H. Forwood. The introduction of new implements of warfare and of modern surgical methods has made obsolete much of the former teaching on this subject, while from want of experience under the new conditions enumerated many points must for the present remain open questions. The author employs antiseptic surgery with commendable consistency throughout. Exception is taken to the popular but unwarranted dread of hemorrhage after gunshot wounds. It is held that the handling of these wounds and the unsurgical and dirty materials employed in the first dressing cause more deaths than would occur from hemorrhage if the cases were untreated. The general use of the tourniquet is also condemned. It is stated that of 245,790 shot-wounds during the War of the Rebellion 110 cases of primary hemorrhage were recorded, and probably less than half of these were in the extremities, where a tourniquet could have been successfully applied.

Dr. Senn's article on diseases of the bones is an excellent exposition of the subject. Of the various recommendations perhaps none is more important than that referring to the prophylactic treatment of osteomyelitis. Every surgeon is familiar with the extensive operations required for the wide-spread ravages of this common affection, the months spent in convalescing, the deformity resulting, and even, too often, with amputations in cases so long neglected that conservative operations cannot be considered. Dr. Senn says, "The prophylactic treatment of osteomyelitis consists in the timely treatment of peripheral, accessible, suppurative lesions, and in avoiding the usual exciting causes. As the gastro-intestinal canal is undoubtedly more frequently the route through which infection takes place than is generally supposed, and as nature's resources often attempt elimination of the pathogenic micro-organisms in this direction, it would appear rational to administer a brisk cathartic on the appearance of the first

symptoms." It is recommended that an operation be done as soon as a positive diagnosis can be made, and under strict antiseptic precautions, with a view of removing all infected tissues. Of the resection of joints it is very properly said that surgeons limit the operative procedure more and more to the removal of diseased tissue in place of typical resection.

Orthopedic surgery has been well presented by Dr. V. P. Gibney. In speaking of the treatment of tubercular osteitis of the spine, the writer says he believes that large doses of potassium iodide will cure the greater number of cases. It is understood, of course, that fixation is to be employed, and any other indication met with appropriate measures. The author holds a conservative position in regard to the treatment of the various joint affections. He opposes early excisions in disease of the hip as well as of other joints, and he prefers tenotomy to the open incision for the correction of the deformity in club-foot. The very valuable method of treating sprains by strapping with adhesive plaster is described under the name of the Cotterell dressing.

Dr. Lewis A. Stimson has given a very good description of aneurism in general; the discussion of the special aneurisms has been assigned to Dr. Percival R. Bolton.

The section on the surgery of the arteries and veins has been contributed by the editor, Dr. Frederic S. Dennis, and that on the surgery of the lymphatic system by Dr. Frederic Henry Gerrish.

The article on diseases and injuries of the head, by Dr. Roswell Park, is the most comprehensive in the volume. It occupies nearly 300 pages, and the various subjects are discussed in the light of the most modern views.

Dr. W. W. Keen contributed the section on the surgery of the spine; a chapter on the surgery of the nerves, by Dr. John B. Roberts, completes the volume. In both the subjects have been well presented, and the views expressed represent the most advanced teachings of to-day.

As was said of the first volume, the matter is modern and authoritative, and quite maintains the standard established by it.

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MEDICAL MAGAZINE.

DECEMBER, 1895.

A CASE OF PHTHISIS APPARENTLY CURED.

By William Pepper, M.D., LL.D.,

Professor of the Theory and Practice of Medicine and of Clinical Medicine in the University of Pennsylvania.

The following noteworthy case was seen in consultation with Dr. W. Duffield Robinson. The patient was a woman of 21 years. The family history revealed a decided taint of tuberculosis, her mother and several other members of both sides of the family having died of phthisis. Her mother died in the spring of 1892.

In March, 1893, the patient suddenly began to lose flesh, her appetite became poor, her digestion much deranged, cough and expectoration appeared, and general debility followed so rapidly and overwhelmingly that when first seen during the latter half of the month she was already bedridden. At that time her condition and the physical signs were as follows: She was extremely emaciated, weighing but 100 pounds. Fever was constant, very irregular, and with a high evening rise. She suffered nightly from the most profuse and exhausting sweats. Her appetite was entirely abolished, the stomach was so irritable that the slightest cause would provoke violent attacks of vomiting. Cough was persistent and the expectoration very free, the daily average was eight fluidounces of thick, tenacious, heavy sputum. In the right apex and over the base of the left lung were signs of consolidation,—increased fremitus, dulness on percussion, bronchial breathing with fine crackling râles and a few bubbling râles. The sputum contained myriads of tubercle bacilli; the bacteriologist regarded the abundance of bacilli as the most extreme in his experience, hundreds could be counted in one field. An unfavorable prognosis was, of course, the only one that seemed justifiable.

The patient was placed upon a diet of egg-albumen, which seemed

to agree with her stomach better than any other food, and this diet was forced so that she consumed daily the albumen of two dozen eggs. The medicinal treatment consisted of $\frac{1}{100}$ of a grain of strychnine nitrate with $\frac{1}{1000}$ of a grain of atropine sulphate, every two hours hypodermatically; and $\frac{1}{50}$ of a grain of strychnine nitrate with $\frac{1}{12}$ of a grain of the double chloride of gold and sodium, and $\frac{1}{2}$ of a grain of a vegetable digestive every two hours by mouth. After a few days the amount of gold and sodium was increased to $\frac{1}{8}$ of a grain every two hours. She was given cod-liver-oil inunctions, and general massage with passive movements once daily. At first she showed signs of strychnine intoxication, and the dose was reduced, but she soon resumed the original dose, and after the first two weeks she bore the drug well, although always just inside the border-line of its toxic action. During April she improved decidedly; she regained flesh, the fever became less marked, the night-sweats less profuse, the cough was allayed, and the expectoration much reduced, though still rich in bacilli. During May the improvement was very rapid. By the latter part of the month she had recovered her normal weight, 125 pounds. The fever and night-sweats had disappeared, the appetite was good and the digestion normal, the cough was almost gone, and tubercle bacilli had disappeared from the sputum, which was still expectorated in very slight amount. All signs of consolidation in the right apex and base of the left lung had disappeared, the only remaining sign was slightly harsh breathing at those sites. She was instructed to continue her general treatment, to return to a normal diet, to practise forced, deep breathing and graduated exercises, and was sent to the mountains. In September she returned to the city in perfect health. Her weight was 132 pounds; she was robust and muscular, with better chest-expansion than she had ever possessed before in her life. There was no cough or expectoration, the lungs were in all respects entirely normal, except for a patch of emphysematous breathing in the base of the left lung. She re-entered upon her social duties and has since led a busy life. Her health continued perfect until early in August, 1895, when she had a slight attack of pneumonia involving the base of the left lung. The sputum was sparse, resembled prune-juice, and was crowded with pneumococci and tubercle bacilli. The attack ended by crisis on the eighth day, and a few days later she was again sent to the mountains. She returned in ten days with a recurrence of all the symptoms of the attack of two years previous. Her weight had fallen to 114 pounds, there were anorexia, fever, cough, and free expectoration, which was full of tubercle bacilli. In the base of the left lung was consolidation with moist râles. She was placed on the same treatment given her during the first attack, and she rapidly

regained flesh and strength. On November 1 her weight was again up to 124 pounds, all fever was gone, the cough and expectoration had almost disappeared. Tubercle bacilli were not to be found since the last week in October. The consolidation had become greatly reduced, but was still present, when a few days later she was again sent to the mountains.

Noteworthy points in this case are: the sudden onset, quite like general miliary tuberculosis; the large number of bacilli; the rapid recovery, all the more remarkable with a pronounced tubercular family history; the complete disappearance of consolidation and bacilli; the acute reappearance after two years of the whole train of symptoms, with signs in the base of the left lung directly following an attack of pneumonia located in that vulnerable part; the large number of bacilli and their early complete disappearance in the second attack; the abatement of the consolidating process, and rapid recovery of the general health after the second attack; the absence from the treatment of all cough-medication and antiseptics, and the large doses of strychnine nitrate and the double chloride of gold and sodium, with which the system was kept literally saturated.

THE PREVAILING INDICATIONS FOR HYSTERECTOMY.[1]

By Richard C. Norris, M.D.,

Physician-in-Charge, Preston Retreat, Philadelphia, etc.

When I was honored by an invitation to present a paper for your discussion, it occurred to me that the subject selected would interest you and could very profitably be discussed at this time, since the ever-widening scope of usefulness of hysterectomy occupies the foremost place in the work, the thoughts, and the discussions of practical gynecologists. All of you recall the fact that only a few years ago most operators were content to remove only the cervix and a portion of the womb for malignant disease of the uterus, and that hysterectomy for carcinoma or for fibroids was an always dreaded operation to be avoided on account of its high mortality. When you contrast this limited field of the operation with the varied diseased conditions of the pelvic organs, for the cure of which diseases removal of the uterus is now being done with brilliant results, you will agree that

[1] Read before the Middle Coal Field Medical Society at Hazleton, Pa., October 15, 1895.

hysterectomy represents the latest and best achievement of modern gynecology. I am here to-night with the hope that I may be able to present an outline of this subject that will prove of interest, evoke your criticism, and thus enable me to share with you your experiences with the varied diseases of the pelvic organs that often require removal of the uterus.

It will be profitable to discuss the indications for hysterectomy, studying especially those diseases to which this operation has recently been applied, and comparing the different methods of operation, incidentally to note the practical results thereby attained.

The diseases of the pelvic viscera for whose cure removal of the uterus is employed may conveniently be grouped as follows:

(*a*) Malignant disease of the cervix or body of the womb.

(*b*) Uterine myoma or fibroma.

(*c*) Chronic pelvic inflammatory diseases of the uterus and its adnexæ.

(*d*) Total prolapse of the uterus after all other means of treatment have failed to effect a cure, or when the patient has passed the menopause.

(*e*) Certain cases of acute infection of the pelvic viscera after miscarriage or after labor at term.

The methods of operation, whose advantages and disadvantages I shall ask you to discuss, are (*a*) the extraperitoneal and (*b*) the so-called intraperitoneal treatment of the stump, or, to use accurate terms, abdominal and pelvic fixation of the stump after abdominal hysterectomy, and (*c*) hysterectomy by the vaginal route.

Malignant Disease.—I believe no one will take exception to the statement that the only hope of a woman suffering from either carcinoma or sarcoma of any portion of the womb is the prompt removal of the entire uterus at the earliest appearance of the disease. If there is one fact more than another that gynecologists wish to impress upon the general practitioner, it is the early recognition and treatment of intrapelvic diseases, and of the latter, none is more important than the early recognition of malignant disease.

Difference of opinion no longer exists as to the proper treatment of a cancerous uterus when the growth is limited to the uterus,—that is to say, when there is no involvement of the glands of the pelvis, of the broad ligaments, of the bladder, or of the vaginal walls, and when the uterus is movable, or if fixed, when this fixation is clearly due to peritoneal inflammation and not to cancerous infiltration. As to the choice of operation, whether by the vaginal or abdominal route, my experience is in favor of the vaginal operation by ligature, except in cases where the small size of the vagina offers too little room for

precise and thorough work; where the extent of cancerous infiltration is in doubt, or where a knowledge of the spread of the disease induces one to prefer the abdominal operation, to better determine the degree of extension and to permit a more thorough excision of all diseased tissue in the broad ligaments and vaginal vaults. I am convinced that in cases where there is doubt as to the extent of the cancerous disease,—and a vaginal or rectal examination cannot always decide this question,—it is right to give our patient the benefit of the doubt by offering an exploratory abdominal incision with the understanding that an attempt may or may not be made to remove the uterus. I have followed this plan in several instances with great satisfaction, and know that this opinion is shared by other operators in Philadelphia.

Recently there was referred to me, at the Methodist Hospital in Philadelphia, a patient whose uterus I have thoroughly curetted and cauterized, in whom the disease has attacked the left broad ligament, and has probably invaded the left ureter for about one inch. The right broad ligament and pelvic glands are apparently free. This patient has been advised to submit to a celiotomy in order, if possible, to remove the uterus, resect the ureter, and implant its proximal end into the bladder. For this kind of a case the abdominal operation is clearly indicated, if not to effect entire removal of the cancerous mass, at least to prolong life and to make the patient more comfortable while she lives. The surgery of the ureter in this case will be facilitated by a preliminary catheterization of the ureter through the bladder to assist the dissection of the ureter,—a procedure not only useful for the purpose just named, but also valuable to isolate the ureter under other circumstances. The abdominal route, then, is reserved for the cases of malignant disease so far advanced that doubt is entertained as to the practicability of completely removing by the vagina all involved tissues. You will readily understand that the abdominal operation in such cases is by no means easy, and that it requires usually a longer time for its completion than the vaginal operation. The very great advantage of the abdominal route in this class of cases is the thorough inspection, by means of the Trendelenburg posture, of the infiltrated tissue, and the assurance that ligatures are placed and tissues excised beyond the infiltrated area. The difficulties encountered are the inability to bring the uterus well up into the abdominal wound on account of the adhesions and infiltrated tissues about the cervix, and the unpleasant hemorrhage likely to occur when these same tissues are incised, although the uterine arteries have previously been securely ligated. To contrast these difficult, dangerous, and anxious cases with the vaginal operation for an early

recognized case, I shall present the history and the specimen of a case operated upon at the Methodist Hospital three weeks ago.

The patient, Mrs. H., 40 years of age, is the mother of nine children, the last delivery having occurred four years ago. Her menstruation gradually had been increasing in amount during the past six months, but had recurred at regular intervals, followed by a slight watery discharge, until three months ago, when she was suddenly taken with flooding, which lasted for a half hour, and she believes that she lost about a quart of blood. Two days later, and again after an interval of three days, a second and third attack of bleeding occurred.

A physician was at this time summoned and thought the patient had miscarried. From this time until her admission to the hospital a bloody discharge, slightly offensive, had continued. The patient was very anemic and emaciated, and complained of slight pelvic pain. Upon examination, a mass the size of a small apple was found on the posterior lip of the cervix, which had sustained an extensive stellate laceration. The mass was very friable, breaking readily under the pressure of the finger, and bled freely. After excising several wedge-shaped pieces for microscopical study, the epitheliomatous tissue was thoroughly curetted, and a tampon saturated with a 50-per cent. solution of zinc chloride was applied, and the vagina was filled with pledgets of cotton wrung out in a saturated solution of bicarbonate of soda.

While the patient was under ether the pelvic glands were explored through the vagina and the rectum; the uterus was found movable; the broad ligaments and glands were uninvolved. Eight days after the curettement the uterus and ovaries were removed by vaginal hysterectomy, the broad ligaments and vessels being secured by silk ligatures. The patient, despite her emaciation and extreme weakness, made a good recovery.

Fibroma or Myoma of the Uterus.—When you recall the fact that uterine fibroids occur in 12 per cent. of women over 40 years of age, and that skilled operators are removing these tumors with a mortality not exceeding 5 per cent., this subject assumes so great importance that it may profitably be discussed by any society at any time. The life-history of uterine fibroids no longer leaves any doubt about the question of their removal in the largest number of cases. Indeed, many gynecologists assert their honest belief that any fibroid of the uterus, however small, should promptly be removed when it occasions any symptoms whatever.

You, as well as I, know that these tumors generally do not disappear after the menopause, as we were once taught they did. On the

contrary, we know that very often the menopause is delayed for years, and that the tumor continues a menace to the patient's life, either by continued hemorrhage or by grave pressure upon important viscera, or if not directly dangerous to life, the patient is rendered an invalid by the frequently associated inflammatory or suppurative tubal and ovarian disease, by hemorrhoids, by rectal fissures and fistulæ, by hydronephrosis, by pelvic neuralgia, by loss of blood, and by the effect of the degenerative changes which occur in these tumors.

Gynecologists are convinced that removal of uterine fibroids is a necessity when they cause persistent hemorrhage or grave pressure symptoms; when the tumor is intraligamentary or cystic, or is growing rapidly, or when the patient cannot afford to be an invalid. And it is also true that the only kinds of uterine fibroids which produce symptoms and which do not require hysterectomy are submucous tumors, which are usually polypoid and occur singly, and very small tumors occurring in young women. The former can safely be removed *per vaginam*, and to the latter simple oöphorectomy is often applicable.

Although there is little difference of opinion as to the necessity for removing all other kinds of uterine fibroids, the best means of removal is not yet determined, and it is impossible to say which of the methods now in vogue is most satisfactory,—ventral or pelvic fixation of the stump or pan-hysterectomy. The choice of operation I am especially anxious to have you discuss. Your experience will doubtless agree with mine,—which is that a single method is not applicable to all cases. I have no experience with myomectomy, and prefer to have its high mortality occur in the hands of others. At present, pelvic fixation of the stump or pan-hysterectomy are the most popular methods when the uterus and appendages have to be removed. The steps in these methods are well known to you, but may with advantage be briefly described [pelvic and abdominal fixation of the stump after hysterectomy were illustrated with diagrams and specimens]. No operator can perform or witness the method of pelvic fixation without being convinced that it is a clear-cut surgical piece of work. You may be partial to the neud, because you have been successful with it. You may say the neud operation is rapid and clean; that the peritoneal cavity is left without a ligature and with no raw surfaces to contract adhesions, and that experience has taught you the most essential feature of the operation,—namely, the ability to shell the tumor from its capsule and cut down the pedicle while tightening the neud until a narrow and snug pedicle is formed. These features are indeed attractive, and, as you well know, are more easily described than carried out when your task is the removal of a

tumor impacted low in the pelvis and buried in the vaginal cul-de-sacs or spread out between the layers of a distorted broad ligament. When the slowly sloughing pedicle, the long convalescence, and the greater liability to hernia that you have observed to follow the neud operation are compared with the easy convalescence, the freedom from hernia, and the equally good or better mortality record of the pelvic fixation method, you will do what gynecologists everywhere, with a few distinguished exceptions, have done,—select the pelvic fixation method whenever possible. It cannot be denied that abdominal fixation of the stump is easier in some cases, and therefore should be selected by the beginner. Every operator should, however, become thoroughly familiar with pelvic fixation of the stump, in order to remove some pelvic-bound tumors which may baffle the neud method in his hands, and to qualify himself to remove by the abdominal route, uteri which may require removal for causes other than fibroid growths, and for which the neud is inapplicable. Of the two specimens I present, the one (a large myoma with narrow cervix for a pedicle) is an ideal tumor for the neud operation, but you will also observe that for this kind of tumor the pelvic fixation method is just as simple and equally easy. Removal of the other tumor (multiple intraligamentary fibroids) would tax the skill and ingenuity of the most ardent advocate of the neud, and yet no great difficulty was found in removing the growth by ligating its nutrient vessels and cutting the mass away at the level of the internal os.

Hysterectomy for Pelvic Inflammatory Diseases.—No subject in gynecology has been so much discussed recently as the substitution of abdominal or vaginal hysterectomy for salpingo-oöphorectomy, to effect a permanent cure of inflammatory diseases of the uterus and its adnexæ. In order to place this subject before you for discussion to-night, I will briefly outline the arguments in support of the more radical operation, and will invite your criticisms either for or against this operation, and of the route to be employed, whether through the abdomen or through the vagina.

First let me present some propositions relative to the desirability of removing the uterus where the tubes and ovaries are so diseased that their removal is necessary. The crucial test of any grave surgical procedure is an unbiased estimate of its mortality and of its permanent curative value. Measured by this standard, the mortality following hysterectomy for pelvic inflammatory diseases, in the hands of skilful operators, is not greater than that of salpingo-oöphorectomy. This statement is true and is based upon honest statistics. You will observe that I include the work only of expert operators, well trained in the technique of hysterectomy. In the hands of the inexperienced this operation will often prove disastrous.

Applying the second test,—namely, the comparative ultimate results: the cases are sufficiently numerous to reach a favorable verdict for hysterectomy. It has been your experience, as it has been mine, that after the removal of both tubes and ovaries patients have not been completely cured. On the contrary, it is not uncommon to find patients returning or seeking relief at the hands of a colleague, complaining of pain and discharge, and not enjoying the renewed health that either had been promised or expected. Further, it may have been your experience, as it has been mine, to fail in your efforts to relieve the uterine disease, remaining in these patients, either by curettement or by other local treatment, and you have had forced upon you the fact that you had failed to accomplish a result satisfactory to yourself and to your patient. If you have ever submitted such a patient to a secondary operation for the removal of the uterus, you doubtless have observed the disappearance of her troublesome symptoms,—in other words, the patient was completely relieved only after removing the uterus. The specimens I shall show you are from such a case. Two large tubal pus-sacs removed; a large boggy uterus left behind, whose subsequent removal was necessary to cure the patient. This experience has been repeated by surgeons sufficiently often to induce them to study the reason therefor, and to determine in what cases the primary operation should remove the uterus as well as its adnexæ. Briefly stated, it was remembered that pathology had demonstrated the uterus to be a part and often the origin of tubal and ovarian disease, and to remove the latter without the former was to do incomplete work, which would in many cases be followed by incomplete results.

The immediate and remote results of hysterectomy in selected cases of pelvic inflammatory disease have carefully been observed, and it has been noted that the shock following this operation is usually not greater and often is less than after salpingo oöphorectomy; that convalescence is more satisfactory; that the liability to hernia is less since drainage is seldom necessary, or, if required, the vaginal route, with its great advantage, is available; that the nervous disturbances of the enforced menopause are less troublesome, and, finally, that ultimate cure is more often obtained.

The conditions of the pelvic organs that make it necessary to remove the uterus are not very numerous, yet one or all of these conditions will accompany most cases of long standing and some acute cases of pelvic inflammation. As a rule, it is best to remove the uterus along with the broad ligaments, tubes, and ovaries, when the womb is enlarged and its walls are infiltrated, or when it is so densely adherent to adjacent structures that their enucleation seriously injures

the uterine tissue or interferes with its blood-supply. This specimen of suppurating double intraligamentary cysts, coursing over which you will observe two large pus-tubes, is an extreme example of the kind of cases suitable for hysterectomy.

While attempting to enucleate these pus-sacs from their bed in the broad ligaments, the adhesions were so wide-spread and the bleeding so profuse that the only safe plan was to tie both ovarian and uterine arteries and to thoroughly clear the pelvis. The result justified the course pursued in this case.

While a very large proportion of cases of pelvic inflammatory disease is suitable for hysterectomy, it must be remembered that this operation requires much skill and good judgment, the risk being greater in proportion to the operator's inexperience and the patient's inability to stand the necessarily longer administration of the anesthetic. These last-named factors count more than any others for or against the immediate result of the operation.

My review of this subject would be incomplete without mention of hysterectomy by the vaginal route for pelvic affections, and since the application of vaginal section for the cure of these diseases is the latest development in gynecology, the importance of this subject justifies reference to it.

I will ask you to discuss the vaginal method of operating, and will very briefly advance several propositions relative to its indications, and will place before you its claims.

As you are well aware, the most ardent advocates of vaginal section consider it applicable to all possible intrapelvic diseases, and even to intra-abdominal tumors, large fibroid tumors having been removed by morcellation with astonishing results. It would appear, however, that its legitimate field will be more restricted. The operation may be indicated for long-standing cases of inflammatory pelvic diseases, in which there have been repeated attacks of peritonitis, with dense adhesions and pus-formations which may have spontaneously opened into the bowel, bladder, or vagina; evacuation and drainage here will often be useful as a preliminary measure, to be followed, if need be, by a celiotomy, after the patient has gained in strength and flesh. If such a case is first discovered when the abdomen is opened, I believe it is good surgery to close the abdomen and evacuate and drain the abscess by incision and exploration through the vagina. To attempt by the vaginal route to remove diseased adherent organs in such cases is certainly dangerous. These are the cases in which the vaginal operators frequently report urinary or fecal fistulæ following the operation.

It is possible that before long we will wholly discard local treat-

ment for a displaced and adherent uterus, or tube and ovary, and that the organs will promptly be examined and replaced through an incision in the vaginal cul-de-sac. It is probable, also, that fibroids, especially those capable of passing the inferior strait of the pelvis, will always be enucleated or morcellated and be removed *per vaginam*, and that the same method will be employed in many cases of tubal and ovarian disease.

The remarkable work of Péan, Ségond, Jacobs, and others, by vaginal section for pelvic inflammatory diseases, has led gynecologists the world over to a serious consideration of the advantages claimed for vaginal hysterectomy in dealing with the various intrapelvic inflammatory diseases, for the cure of which celiotomy has heretofore been applied. In America, practically, little has been done along this line, but our national trait of being ever willing to test that which is new, especially when it promises practical results, will doubtless accumulate for us within a short time, an experience with and a just estimate of the operation of Péan.

Applying to vaginal section the same test as that just used for removal of the uterus through the abdomen,—namely, the mortality and the ultimate curative results of the operation,—Jacobs has given the mortality in 816 cases of suppurative diseases of the appendages treated by vaginal hysterectomy at the hands of six operators whose combined mortality was 4.5 per cent. In 584 cases of non-suppurative diseases of the appendages the mortality was 1.7 per cent.

These results are indeed remarkable, but not more so, I honestly believe, than the statistics of abdominal surgeons equally skilful with the vaginal operators whose statistics are quoted. Granting, however, that in the hands of most operators the danger to life is less; that shock is not so great; that convalescence is shorter, and that the danger of hernia is avoided,—the future must decide the comparative ultimate results of abdominal and vaginal hysterectomy for pelvic inflammation.

Procidentia.—The very large number of operative measures devised for the cure of complete prolapse of the womb is evidence that we, as yet, possess no means of treatment applicable to all cases and wholly satisfactory. The minor operations, including high amputation of the cervix and plastic operations upon the anterior and posterior vaginal walls very often have failed. The same may be said of Alexander's operation combined with perineorrhaphy; of Lefort's operation, and even of vaginal or abdominal hysteropexy.

After observing the varied success of the operations mentioned, I have finally adopted vaginal hysterectomy and removal of a considerable portion of the vaginal walls for complete prolapse of the

uterus in women past the menopause or for those who may not expect conception, or for those in whom other operations have failed to effect a cure. In the former class of women, who are usually well advanced in years, a rapid vaginal hysterectomy consumes less time and is accompanied by less shock than the more tedious plastic work. This saving of time and diminution of shock by shorter anesthesia, together with the prospect of permanent cure, make vaginal hysterectomy the choice operation. After such radical treatment, plastic work to effect a permanent cure is very rarely required.

When the patient is younger and may expect conception we must be content with combined operations, and after curetting the uterus, amputating or repairing the cervix, performing an anterior colporrhaphy, either Emmet's or Stoltz's, the abdomen is opened and ventrofixation is performed. A month later the posterior vaginal wall should be repaired by either Emmet's or Hegar's operation, taking especial care in these cases to make the denudation very much more extensive than for other cases.

Hysterectomy in the Puerperal Period.—Since Tait advised and practised opening the abdomen for puerperal sepsis not more than a decade has passed, nevertheless, the value of such a measure is established, and increasing experience is gradually making clear the indications and contra-indications of celiotomy in recent septic cases. The title of my paper excludes all discussion of the usually fruitless section for diffuse suppurative peritonitis following childbirth and the usually successful operation, when performed sufficiently early, for localized pus collections in the peritoneal cavity, or in the tubes, ovaries, or pelvic connective tissue. But my subject permits allusion to the newest phase of celiotomy for puerperal sepsis that advocates the removal of the uterus and broad ligaments as well as the tubes and ovaries in two classes of cases. One class of cases for which puerperal hysterectomy is advocated comprises all cases of pelvic infection, where, after the removal of a tubal or ovarian abscess, there will be left behind in the pelvis infected and infiltrated broad ligaments or a uterus containing areas of infection or suppuration, which finally either spreads to the peritoneum and causes a fatal peritonitis, or which permits septic absorption to continue until the patient succumbs. The other class of cases for which hysterectomy has been proposed comprises early cases of grave infection going from bad to worse under the usual treatment by curettage, irrigation, and stimulants, in which cases there are no physical signs indicating that the local septic process has spread beyond the womb, and for which immediate hysterectomy is performed (usually within the first week after delivery) in order to abruptly terminate septic absorption in time to save the patient's life.

It is usually not difficult to decide for or against puerperal hysterectomy after one has opened the abdomen for pelvic inflammation following labor. The great difficulty is to decide whether a beginning case of puerperal sepsis should or should not be subjected to so grave an operation. The operations performed for early puerperal sepsis have been so few that it is impossible to formulate a definite rule of action to guide us in the management of these cases. With the knowledge of this important subject now at hand, my own course in a given case is about as follows: With the first appearance of rapid pulse, chill, fever, offensive discharge, and abdominal tenderness, a careful examination of the parturient tract and adjacent structures is made. If indicated, the uterus is carefully and thoroughly curetted, irrigated, and lightly packed with iodoform gauze, and free catharsis is obtained by salines. If within a day or two the patient has grown steadily and rapidly worse and there are *physical signs of inflammatory material within the pelvis or abdomen*, further delay in opening the abdomen is dangerous, and when opened, if the uterus or broad ligament shows pus collections or infected areas, hysterectomy is performed. When the septic inflammation is confined to localized areas within the peritoneal cavity, or to the tubes and ovaries, irrigation and drainage are enough for the former and salpingo-oöphorectomy for the latter. Should the very rare extraperitoneal collection of pus within the folds of the broad ligament be encountered, the abdomen is closed and the abscess is evacuated and drained either through the vagina or over Poupart's ligament.

The recognition by physical examination of localized inflammation makes the decision in favor of operation easy when the case rapidly grows worse under other plans of treatment; but suppose inflammatory areas in the pelvis or abdomen cannot be discovered, what then is to be done? Perhaps the future will solve this problem. In the past the results of operation in such cases, with very few exceptions, have been either fatal or it was learned too late that the operation was unnecessary. These results are not surprising when one remembers that there are certain forms of puerperal infection that either do not require or contra-indicate celiotomy. For example, this operation is never indicated in sapremia, nor in the early stages of septic inflammation localized in the interior of the womb, nor when in the phlebitic or lymphatic forms of infection are present. When, these cases, the patient's general condition finally is sufficiently serious to warrant treatment more radical than previously had been employed, it is usually too late for hysterectomy to avail, since absorption, either through the lymphatics or the veins, has produced a septic condition too general and widespread to save the patient by removal

of the pelvic organs. The situation is like that of "locking the barn-door after the mare is stolen."

If one decides not to delay until grave systemic symptoms appear and chooses to promptly perform hysterectomy for these cases, he must often operate within the first week after labor in order not to do his work too late, and he will frequently err by doing an operation which may not be required and which will often cost the patient's life, because her general condition is such as not to endure the additional strain of a grave operation.

In cases having no local signs, perhaps the future will give us some diagnostic means, bacteriological or otherwise, to determine, on the one hand, that prompt and early removal of the uterus is necessary to save the patient, and, on the other hand, that it is proper to delay with the assurance that Nature, unaided, will either localize the infection or completely stamp it out. As a matter of fact, we are unable to make an early and accurate *clinical* diagnosis between the different forms of puerperal infection, and we possess no means of knowing whether the septic invasion will localize itself. When we recognize that localization has occurred, then an operation, even upon the most desperately ill, often saves life. Until some means are at hand to determine these clinical problems, operation for cases with no local signs of infection will always be hazardous and usually without benefit to the patient. It is possible that the plan suggested by Henrotin may prove of very great value,—namely, an early incision through the vaginal cul-de-sac, in doubtful cases, for exploration and for drainage and for limiting the inflammation before widespread destructive change can occur.

Our present knowledge of this subject, therefore, warrants operative treatment through the vagina or abdomen, as a rule, only when there are lesions outside the uterus clearly recognized by physical examination. If this rule is disregarded the operation will usually be of no benefit or may even positively be harmful. The following case, whose temperature chart is exhibited, exemplifies this rule:

The patient, Mrs. E., was seen after a natural delivery. On the fourth day a chill occurred, and the temperature rose to 104° F. and the pulse to 140. The lochial discharge was not offensive; some abdominal pain and tenderness and slight tympany were noted. The patient's condition rapidly became alarming; she seemed profoundly septic and rejected most of her nourishment. Under ether the parturient canal and the pelvic organs were carefully examined; the uterus was curetted and irrigated. There was no sign of localized inflammation in the pelvis and the parturient tract was apparently healthy. Forty-eight hours later the patient not only had not im-

proved but was distinctly worse, and fearing to delay longer the abdomen was opened and the abdominal and pelvic organs were apparently normal. The wound was immediately closed, and the patient recovered, but not because a celiotomy had been done.

I have seen this result follow in similar cases under the care of colleagues, and these few operations have convinced me that the rule given above is safe. I am aware of the fact that two or three cases of prompt hysterectomy have successfully been performed in this country, —one by Kelly, in which there was a beginning lymphangitis, and one by Smith, in which there was a beginning peritonitis. Should, however, every case of beginning puerperal lymphangitis or peritonitis be subjected to hysterectomy, the operation would doubtless often be performed without benefit, and many lives would unnecessarily be lost that might otherwise be saved.

In the case just reported, if I had removed the uterus and had found it septic, as it probably was, my operation might have been published as a case of life saved by prompt hysterectomy for puerperal sepsis. As a matter of fact, the operation was a distinct disadvantage to the woman and jeopardized her life, although at the time the operation seemed plainly indicated.

Thus far reference has not been made to operative treatment that is sometimes necessary for a sharp attack of peritonitis due to the bruising or tearing during labor of inflammatory material or tumors whose presence in the pelvis antedated the labor. These cases are to be dealt with according to the recognized principle that pus should be removed whenever and wherever found. In view of the prevalence of pelvic inflammatory diseases, at first thought it is surprising that this origin of puerperal inflammation is not more frequently observed, yet the rarity of these cases is extreme, and can only be explained by the sterility which accompanies tubal and ovarian diseases. In my experience with nearly 1000 deliveries only one case of peritonitis due to a pus-tube antedating labor has been observed, and this patient passed through her attack without surgical treatment. It is my opinion, not based, however, upon my own experience, that operation by the vaginal route is to be preferred in the class of cases at present considered, and when localized sepsis follows abortion, in which latter cases the inflammatory material is likely to be localized lower in the pelvis than after labor at term, when celiotomy offers a distinct advantage for diagnosis and for treatment, if the patient's general condition will permit opening the abdomen.

In conclusion, let me add that when you contemplate performing hysterectomy in the puerperium always try to determine whether or not localized inflammation is present. Remember that you must do

a total extirpation if the cervix is thought to be included in the septic process; that you must operate early and promptly if your work is to avail; and bear in mind that your patient's condition is unfavorable for a grave operation, and that therefore your work must be done as speedily as is consistent with safety.

HEART-DISEASE AND PREGNANCY.

By Herman B. Allyn, M.D.,

Instructor in Physical Diagnosis in the University of Pennsylvania.

The usual effect of pregnancy upon the heart is to cause eccentric hypertrophy. This is the effect under normal conditions. When before the onset of pregnancy the heart is already crippled by a lesion of the valves, or by a weak muscularity, the tendency is for dilatation to predominate over hypertrophy. This tendency, of course, is influenced to a much greater degree by the quality of the heart muscle than by the valve lesion, and yet it makes a considerable difference what valve is affected and whether the lesion is stenosis or insufficiency. I know of a woman with pronounced aortic insufficiency who passed through her pregnancies and labors without apparent difficulty. In the intervals of pregnancy she had been subject for years to severe attacks of breathlessness and cyanosis. On the other hand, in mitral stenosis the mortality[1] in reported groups of cases has been from 40 to 64 per cent. This high mortality in mitral stenosis during pregnancy and the puerperium is explained by the marked influence which this lesion has in bringing about dilatation of the right auricle and ventricle. To some degree this mortality could be lessened by a more careful examination of the patient at the beginning of pregnancy, and a more intelligent appreciation of the character of the cardiac lesion and of the measures best calculated for its relief. But nature has herself spared a notable percentage of married women with mitral stenosis by making them sterile. I recall three such cases at the present time.

While to most patients with mitral stenosis pregnancy is a grave added danger, it must not be overlooked that a few patients pass through the entire time, and even through labor and the puerperium,

[1] See the "Reciprocal Relation of Mitral Stenosis and Pregnancy," University Medical Magazine, April, 1894.

without apparent damage to the heart. Such a case is reported by Duroziez.[1] The woman at the time of the report was 57 years old. She menstruated first at 18. When 23 she had rheumatism, and she married at 24. Her tenth child was born when she was 40. In four of these pregnancies there were abortions or miscarriages with more or less alarming hemorrhage; sometimes it was enormous. In all these four the embryo was a male. The girls she carried to full term, but the first died when one year old, another (seventh pregnancy) lived two years, and another (eighth pregnancy) one year. Only in her tenth pregnancy did she have swollen limbs, and in this one also she carried a boy to full term, and he was living at the time of the report. When about 42 she had a fresh attack of rheumatism. Palpitation dates from her fiftieth year, and was very violent for two years.

In this case it is, of course, inferred that the patient had mitral stenosis throughout all her pregnancies because that lesion was found when she came under observation seventeen years after the last pregnancy. We know, however, that a mitral insufficiency may, in course of time, be converted into a mitral stenosis, and the converse also may happen. But the woman undoubtedly had a heart lesion for years, and possibly it was a stenosis from the first. It is remarkable that she should have survived so many pregnancies. The best explanation of this tolerance is that the repeated abortions and hemorrhages served as a safety-valve. The infantile mortality was frightful; only three survived out of eleven, one pregnancy having ended in a miscarriage with twin boys. In endeavoring to estimate the reciprocal effects of heart-disease and pregnancy, we must ascertain, as nearly as possible, the probable period at which the heart lesion began. In some cases there is definite information to be obtained from the family, such as a statement that a former physician had found a heart lesion when the patient was of a certain age; or the patient may recall that, as a child, she began to suffer with shortness of breath, palpitation, and possibly epistaxis. Manifestly it may lead to error to assume that because a woman of 40 or 50 has a heart lesion she had it also during her childbearing period. It may have developed during some particular pregnancy, or during an interval between them, and may even be the result of repeated pregnancies.

In a patient who developed a marked cardiac lesion in childhood or adolescence, and who presented definite cardiac symptoms for some years before marriage, we should expect a result different from that found in a patient who develops the lesion during the childbearing period. In the former the heart has, so to speak, become moulded to

[1] Arch. Gén. de Médecine, 1877, II, 47, Case XIX.

meet only ordinary conditions, and cannot sustain extraordinary strain. Moreover, long persistence of a cardiac lesion favors myocarditis and dilatation.

The possibility of acute endocarditis arising in pregnancy appears to have been pointed out first by Simpson, in 1847. Most of his cases occurred during or after confinement. He was struck with the occurrence of vegetations on the endocardium, and by the embolic phenomena due to the escape of fragments of vegetations from the valves and their subsequent arrest in an artery. Virchow subsequently reported an example of puerperal ulcerative endocarditis. But acute endocarditis may arise during pregnancy as well as during the puerperium. The altered condition of the blood and the increased effort demanded of the heart both contribute to occasion it.

Subacute and chronic endocarditis also may arise during pregnancy. This has been especially insisted on by M. A. Ollivier,[1] who maintains that an anterior pregnancy alone may account for an existing endocarditis. Moreover, pregnancy appears at times to relight an old and latent endocarditis.

Undoubtedly the most constant effect of pregnancy is to aggravate pre-existing endocarditis. Peter attributes to plethora, which occurs in the latter months of pregnancy, from the fifth month especially, the most important *rôle*. But it needs to be remembered that while the volume of blood is increased, its nutritive value is diminished, and at the same time there is an increase of carbonic oxide in the blood and a diminution of respiratory capacity.

Porak,[2] in speaking of the aggravation of cardiac troubles by pregnancy, bases his observations on seventy cases, fifty-seven of which had mitral and only thirteen aortic lesions. He explains this striking preponderance of mitral lesions by saying that aortic lesions present, during pregnancy, fewer complications which have been thought sufficiently interesting to be reported. But probably the more important reason is the absolutely greater frequency of mitral lesions, particularly mitral stenosis, during the childbearing period. In these seventy cases of Porak, the author states that in twenty-one the state of the patients had been almost stationary during a more or less long time. The influence of pregnancy was manifest only by the appearance or very bearable exaggeration of some troubles, such as the persistence of the menses, a hemorrhage at the moment of delivery, abortion or premature delivery, palpitation and moderate suffocation. In some of these cases, after this period of tolerance, there have arisen congestions, edema, pulmonary apoplexy,

[1] Mémoires et Comptes Rendus de la Société de Biologie, December 26, 1868.
[2] De l'Influence réciproque de la Grossesse et des Maladies du Cœur, Thèse, Paris, 1880.

hemiplegia, and asystoly itself, with their always serious, sometimes fatal, prognosis. These are the grave accidents which are oftenest observed, since they are noted in fifty-five cases. He states that these difficulties persist during the whole of pregnancy, or, indeed, after a momentary amelioration, are reproduced sometimes with more violence. If the cases in which, after temporary amelioration, the patient has been lost to sight are eliminated, it will be found that when serious troubles have once appeared, they are rarely sufficiently ameliorated to permit pregnancy to pursue its course to term or so that health is completely restored. Such a restoration is found in only four of his cases, while in fifty-one increase of cardiac disease was progressive.

Cardiac difficulties increase with the progress of pregnancy, and are particularly worse from the fifth month on, reaching their height during labor and the puerperium. In eleven of Porak's cases the cardiac difficulties were gravest during the second stage of labor. Amelioration was observed after confinement in twenty-two cases, and in thirteen of these it was rapid. In my study of mitral stenosis, however, I found that a considerable number of patients died shortly after confinement. In seven of Porak's cases cardiac disease was aggravated in successive pregnancies. Death occurred in thirty-one of the seventy cases, and in five death was sudden. In five cases death occurred before delivery, and in three in the course of pulmonary complications. In two cases death occurred during confinement, while in twenty-five it occurred in the lying-in period. In eight cases death followed momentary amelioration, while in seventeen it resulted from progressive aggravation of cardiac symptoms.

To sum up: the cardiac state remained stationary in 25 per cent.; it was aggravated during pregnancy in 65.74 per cent.; death occurred in 38.09 per cent.; and amelioration during the lying-in in 26.19 per cent. It is evident from these statistics that pregnancy has a very marked influence in aggravating cardiac disease, but it is also clear that some hearts seem to stand the strain without manifest damage. I believe that this escape is more apparent than real; that the heart actually suffers in most instances by a temporary dilatation, but the muscular fibre being good it recovers speedily, so that by the time the patient is permitted to leave her bed the heart is strong enough to enable her to do so without evident discomfort. In fact, I have noticed this result in six patients with mitral insufficiency whom I have attended in one or more confinements. In all of them, as pregnancy advanced beyond the fifth month, there were signs of heart-weakness. But by keeping them under observation, guarding them against over-exertion and excitement, and by the continuous adminis-

tration of digitalis, they all went to full term and were confined without difficulty. The hearts, however, showed the strain through which they had passed by becoming irregular in action and by the feeble first sounds. This irregularity and feebleness of action ceased before they were allowed out of bed, but in three of the cases it was several months before digitalis could be stopped and dyspnea on exertion ceased to be noticeable. In one case of mitral stenosis, which came under my observation, the patient had had four children. The date of the cardiac lesion is unknown, but it was before the birth of the last child. Several years afterwards she had marked dilatation of the right ventricle and auricle, dulness extending nearly to midclavicular line in the right side, and being accompanied by a soft systolic murmur. This dilatation subsided under enforced rest and cardiac tonics. She had carried all her children to full time and had had short and easy labors.

Let us turn now to the effect of heart-disease upon the embryo and child.

From Duroziez's papers we gather that in forty-one women with heart-disease there were twenty-one abortions and miscarriages, and that forty women brought up only fourteen children beyond the age of 5 years. Further, the histories of nineteen women show ten abortions or miscarriages, while twenty-six children perished between birth and the time the patients came under observation. The infantile mortality appears still greater when it is added that four of the nineteen women were sterile.

Remy,[1] speaking of pure mitral stenosis in nineteen women, states that they had forty-five pregnancies, in eleven of which there was interruption by abortion, miscarriage, or premature labor.

In thirteen cases reported by Marty, there occurred forty pregnancies, including successive pregnancies in the same woman; in twenty five the mother went to term, three children died young, and five were born dead.

The question of prognosis is one of great interest and importance. It is evidently unfair to assume that the percentages already given represent the absolute mortality. They do not for two reasons. In the first place each woman is recorded as a single case, no matter how many pregnancies she may have had. If she perished in her fourth pregnancy she survived three, and so far as statistics go, it was a mere accident that led to her being observed and recorded in the fatal pregnancy instead of in one of the other three she had survived. In the second place, unless the date of origin of the heart lesion is accurately known, we may be wrong in assuming that the patient has

[1] De l'Influence de la Grossesse sur la Marche des Maladies du Cœur, Thèse, Nancy, 1880.

survived a series of pregnancies in spite of her heart lesion; the lesion may not antedate all of her pregnancies, but have occurred between some of them. But that the danger is real and great is evident from the fact that out of the sixty-two cases of mitral stenosis which I analyzed, there were ten fatalities in primiparæ.

Among the thirty-one cases of heart lesions, of all kinds, reported by Macdonald, there were nine or ten deaths also among primiparæ. As deaths during confinement and the lying-in are happily unusual, and as, I fear, the custom of examining the hearts of pregnant women apparently well is also uncommon, it is probable that some cardiopaths are overlooked, and that a proportionately greater number of the fatal cases is recorded because their unusual and startling character makes a deep impression on the attending physician.

After making all due allowances, however, the risk is so grave that it may well make a woman with heart-disease hesitate before marrying. If our advice is asked as to the advisability of marriage, the answer must depend in part upon the lesion presented, and in part upon the condition of the patient, and other circumstances. The outlook is distinctly gloomier in mitral stenosis than in other cardiac lesions, and is very gloomy in cases in which well-marked stenosis with characteristic symptoms has existed for some years,—that is to say, the outlook is very gloomy *provided* the women have children. A notable proportion of these women remain sterile. Perhaps sterility is more common among the slender, slightly anemic, nervous women, some of whom have amenorrhea; it has seemed so in my experience. Such women are not distinctly worse married than single. On the other hand, if the lesion is well compensated, and there is no subjective evidence of its presence, the patient may be permitted to marry. But in any event she will need careful watching, should be shielded from all possible strain and exposure, and in the event of having children should not suckle them. The outlook in serious aortic insufficiency is also grave,—the mortality in Macdonald's cases being very high. Porak, however, gives the mortality in thirteen cases presenting aortic lesions as 23.07 per cent. But the alarming symptoms subside more quickly in confinement or premature labor.

As to mitral insufficiency, cases presenting good compensation usually pass through pregnancy without much difficulty. Porak gives the mortality in twenty-two cases as 13.66 per cent. All of my patients recovered, but they did not present serious mitral lesions, and their hearts were nevertheless distinctly damaged by pregnancy and labor.

As regards mixed lesions, the coexistence of an insufficiency

with a stenosis of the mitral lessens the danger of the former, but not to a very marked degree. In twenty-two cases Porak found the mortality 45.45 per cent. The prognosis will depend upon the state of the heart muscle and its ability to do its work properly. Porak gives the mortality in twenty-two cases presenting mixed lesions as 50 per cent. On the whole, when a pregnant cardiopath can have the best treatment by one who understands the nature of her heart lesion the outlook is considerably less gloomy. The possibility of fresh attacks of endocarditis must not be forgotten. These are more apt to occur in younger patients and in those presenting comparatively recent lesions. There is great risk in marrying soon after the subsidence of an endocarditis, and before full compensation has been restored.

The very high mortality among the offspring of cardiopaths has been sufficiently mentioned. It is well to remember, however, that when we are asked advice as to marriage by cardiopaths, we should not forget the prospects of their offspring, and in case we feel compelled to advise strongly against marriage, the patient may be more willing to listen to advice if we urge the very bad prospect of her having living healthy children.

As regards treatment, this does not in the main differ from the treatment of heart-disease under other conditions. Such differences as exist have been referred to sufficiently in the paper "Mitral Stenosis and Pregnancy" by the writer.

HASTY DELIVERY OF THE FETUS A FREQUENT CAUSE OF POST-PARTUM HEMORRHAGE.

By T. Ridgway Barker, M.D.,

Philadelphia.

That the frequency with which one meets with cases of post-partum hemorrhage are in indirect proportion to his experience and the care exercised by him in the management of labor, cannot, I think, be denied.

If one accepts the statement made by Playfair, in 1885, that post-partum hemorrhage is one of the most frequent complications of delivery, he blinds himself to the true cause of the vast majority of these cases, and can only find an excuse under the cloak of ignorance.

The mechanism of labor, when performed in a physiological manner, is so perfect that, unless interfered with, hemorrhage is well-nigh impossible.

The contraction and retraction of the muscular walls of the uterus, interlacing as do the fibres, act as efficient ligatures, closing the vessels immediately upon separation of the placenta.

In addition, this natural ligation is supplemented and reinforced by the formation of clots. If, however, one has to deal with cases complicated by grave blood changes or a depressed nervous system, then, in spite of all his precautions, he may be unable to avoid this deplorable complication.

It is not my purpose, however, to consider the true or genuine causes of post-partum hemorrhage, which are comparatively infrequent, but rather to call attention to how one may best avoid inducing this state of affairs through meddlesome interference.

As I pointed out in a paper read before the Philadelphia Obstetrical Society, in February, 1893,[1] the coagulability of the blood flowing from the parturient canal during the second stage of labor is an indication as to the likelihood of the occurrence of post-partum hemorrhage.

When the blood clots quickly and firmly such a complication is a very remote possibility. One mistake which is likely to induce post-partum hemorrhage is the effort on the part of the attendant to shorten the length of the labor by attempts at manual or instrumental dilatation of the os uteri; stimulation of contractions by forcible manipulations or by drugs having a similar action.

While all these measures under suitable circumstances are appropriate and of material advantage, yet, when carried to excess, they jeopardize the very life of the parturient. Through overaction one has a state of nervous exhaustion induced which, when the uterus is emptied of its contents, will destroy the contractile and retractile powers of its muscular walls. As a result, profuse bleeding of the most alarming character occurs.

In addition to the over-stimulation of the uterine muscles should be mentioned undue haste in delivery of the fetus.

This is, perhaps, the most frequent cause of hemorrhage. The uterus, instead of contracting slowly upon its contents in a regular rhythmical manner, is suddenly relieved of the fetal resistance which tended to bring pressure to bear upon the lacerated placental vessels, and thereby prevent the too rapid separation of the placenta until constriction had advanced sufficiently to control bleeding.

Besides the two causes already mentioned there is a third, and that is too speedy delivery of the placenta.

If the rules laid down by the more conservative writers on obstetrics are observed, no such difficulty is likely to arise, but if disregarded, disaster will almost inevitably follow.

[1] New England Medical Monthly, June, 1893.

While the uterine sinuses are progressively diminished in size as labor advances, yet, even immediately after the completion of the "second" stage, any attempt at forcible removal of the placenta will occasion brisk and at times dangerous hemorrhage. Therefore it is imperative to allow sufficient time to elapse for complete and perfect occlusion of the lacerated vessels before proceeding to deliver the placenta. Furthermore, by permitting a season of muscular repose the new infantile circulation is given an opportunity to establish itself on a firm basis before the ligation of the cord.

Fifteen minutes is usually quite sufficient for these changes to be accomplished after the delivery of the fetus, but much will depend upon the conditions present.

Wait for the recurrence of contractions after the termination of the "second" stage before proceeding to deliver the placenta is a good, safe rule, and worthy of more general adoption.

By thus giving the uterus time to recover one is assured of firm closure of the sinuses by muscular contractions, and need have no apprehensions as to the possible occurrence of the much-to-be-dreaded post-partum hemorrhage.

One must not, however, neglect to watch the condition of the uterus and see that it remains in a state of tonic contraction, otherwise he may have bleeding taking place without his knowledge.

Thus but one conclusion can be drawn from the above study of the subject, and that is that post-partum hemorrhage dependent upon pathological conditions of vascular, nervous, or muscular systems is comparatively rare, and when due to other causes is the result of inefficient management.

As regards its treatment but little need be said. The one indication is to stop the bleeding. How it can be best and most quickly arrested must, in a measure, depend upon the cause. When the hemorrhage is very profuse and immediate death threatened, pack the whole uterine cavity firmly with the cleanest material at hand and use every means besides to excite uterine muscular contractions.

One's faith should not be pinned upon hot douches, cold douches, ice, friction of the abdomen, internal remedies, and the like; they are all too slow in their action; but pack first and thoroughly, and then resort to the other means to assist in the reviving of the parturient.

Mild cases do not call for such prompt and heroic measures, but when the blood escapes by the pint, flooding bed, patient, nurse, and doctor, there is no time for half-way measures.

Pack the uterine cavity in spite of the remote possibility of infection, for if one does not do so his patient will be dead before the syringe is even found.

VISUAL PERCEPTIONS AS SYMPTOMS OF DISEASE.[1]

By William Campbell Posey, M.D.,

Philadelphia,

Assistant Surgeon to Wills Eye Hospital; Ophthalmologist to the Howard Hospital and to the State Hospital for the Insane, at Norristown.

An even casual perusal of the treatises upon ophthalmology which appeared in the first half of the century will discover frequent allusions to phosphenes, photopsia, ocular spectra, hallucinations and visions, unusual forms of amblyopia, etc., and these sensations will often be found to be described as though they were peculiar affections or even distinct diseases. Since the attention of ophthalmologists has been directed by the invention of suitable instruments to the study of the pathology and the ophthalmoscopy of the eye, the source of many of these phenomena has been revealed, and they have been shown to be in most instances but expressions of impaired function, or merely symptoms of disease of the nervous structure of the eye or of the expansion of the optic nerve within the brain. These sensations vary from the complicated visions of the disordered mind to the perception of the tiniest mote.

Nearly every form of insanity is attended at some time or other in its development by visions or hallucinations, and these appear in an innumerable variety of forms; as they are chiefly of interest, however, to the alienist and the psychologist, they will not be dwelt upon in this paper.

There is, however, a group of diseases which is attended more or less constantly by visual sensations which range from the perception of a few muscæ or an ill-defined dimness to the recognition of a combination of objects which is complex enough to merit the name of hallucination. These diseases originate in the cerebral cortex, or at any rate give rise to a train of symptoms which is best accounted for by a disturbance in that portion of the brain, and while they have certain characteristics in common, present a complex of symptoms definite enough to warrant their being classified as distinct and separate types of disease. These diseases are epilepsy and migraine.

Disturbances of vision are not rare in epilepsy, and in migraine they form one of the characteristic symptoms of the disease. In both forms of disease they are usually made up of elementary subjective sensations of light, the more complicated impression of hallucinations being but rarely met with. Gowers found this latter class of visual phenomena but fourteen times among 1000 epileptics, while

[1] Read before the County Medical Society of Philadelphia, September 25, 1895.

the association of this symptom with migraine has been observed even more rarely. Weir Mitchell was the first to call attention to the presence of hallucinations as part of a migrainous attack, and the report of four interesting cases will be found in the *Transactions of the College of Physicians.* Six other cases of a similar nature have been collected by De Schweinitz and reported in full in the UNIVERSITY MEDICAL MAGAZINE.

The hallucinations of migraine and epilepsy cannot be differentiated. They may replace the usual forms of the visual auræ of epilepsy, as well as the fortification spectrum of migraine. They may be seen directly in front of the patient, or they may be hemianopic in character. The patient may be annoyed by the presence of a domestic animal, or he may see troops of soldiers passing in review before him. He may be startled by the appearance of a ghostly figure or terrified by the apparition of a bloody spectre. What is true of these more complex sensations is also true of the simpler visual impressions.

The presence of the fortification spectrum is not conclusive of migraine, although strongly suggestive of this type of disease. The auræ of epilepsy may simulate it perfectly. Barinski has observed it in hysteria, and Duane has seen a case of permanent central scotoma caused by looking at the sun which resembled very closely the scintillating scotoma of migraine.

Visual auræ in epilepsy are not rare. Among 1000 cases of this disease Gowers found auræ of a distinct visual type in forty-three instances, and in 155 cases visual sensations occurred sixteen times, while there was a loss of sight in seven instances. These sensations are also varied and take the form of a flash of light, the appearance of stars, etc. When they are muscular in type they are usually described as giving a peculiar "fixed or staring feeling" to the eyes, or they may manifest themselves as causing an apparent increase and decrease in the size of objects or in their distance from the eye.

As before mentioned, the visual phenomenon of migraine is one of the principal symptoms of the disease. According to Gowers it occurs in at least half of the cases. Its chief characteristic is its hemianopic character. Although many who suffer from this disease state that the sight of but one eye is affected, this assertion must be taken with a degree of reservation, for the defect is present in both eyes, but being hemianopic will only be perceived in the eye in which the more important field was abolished.

The visual sensation may be very slight at times, but a passing obscuration, being compared by the patient to the appearance of air that has been heated over a stove; or again he may become conscious

of a bright spot on one side of the visual field, which changes its appearance as it grows slowly larger. A young man under my care, a clerk in a sugar refinery, who was accustomed to add double columns of figures, was always made aware of an attack of migraine by the disappearance of some of the figures from the column. This case is somewhat similar to that of a man who was only able to see the letters *son* upon a sign which bore the name *Jacobson.*

These subjective sensations may or may not be colored. They are frequently described as resembling globes of fire of different colors, which possess rotatory movements of greater rapidity at the periphery of the globe, but the most common appearance is that which is known as the fortification spectrum. This is the appearance of rays of light resembling darts of fire which form a broken, angular line, of which the edges rapidly vibrate as the spectrum passes across the field. An intelligent young lady, at my request, has furnished me with this description of the spectrum, which she designated as *the eclipse of the stars.* "Before the mind is aware of it, there appears to be a film or a kind of mistiness over the eye; this is scarcely perceptible unless the sight is concentrated upon some particular object. After a little time the mistiness becomes more defined, and slowly obliterates any object at which the eye may be directed. At first the blot appears to cover the object looked at, but it gradually comes nearer the sight, assuming a semicircular shape and becoming as brilliant as lightning. Slowly, with rapid vibratory movements, sharp and dazzling, it works its way from the middle of the eye externally, the semicircle widening and becoming vertical and losing some of its brightness, until it leaves the eye, almost as a straight line, as suddenly as it appeared." Another patient writes: "At the time of the attack, if I centre my gaze on any object across the room, a series of prismatic colors will appear above and to the left. If I close my eyes the prismatic colors stand out more sharply, but retain the same form. The visual perception seems to be made up of a dark framework, with numerous perforations through which the colors rapidly play." At times, in place of the spectrum, there may be sudden loss of sight. This is never complete, for it is hemianopic in type. In several instances there has been a double hemianopia, but such cases are extremely rare. The visual defect may begin at the periphery or at fixation, more usual in the former position.

The history of a case of migraine is appended, which is of interest on account of the presence of an hallucination in the blind area, and also because of the fact that I had the opportunity of obtaining careful fields from the patient at the height of one of her attacks.

Female, aged 28 years. Family history good. When aged 18

years, she says she had childbed fever, and that during the course of this disease she was totally blind for some time. She gradually recovered her sight with her health, and did not suffer further with her eyes until five or six years later, when she began to complain of supra-orbital headaches which were increased by reading or sewing, and to be troubled by symptoms of muscular and accommodative asthenopia. She thinks that her health was excellent at that time. About eighteen months ago she saw balls of fire before the right eye. These were in motion, and were associated with dizziness and headache. After a time these visual phenomena became more frequent and changed their appearance. The attacks occurred while she was feeling apparently well, and would first manifest themselves as a mistiness, which appeared upon her right side. This mistiness was broken by the appearance of a half-moon-shaped arc which was composed of various colors, kaleidoscopic in appearance. One year ago, during one of the attacks, in place of this arc she saw a large blue eye in the dark area about the size of a bull's, which was surrounded by a yellowish halo. This eye was in rapid motion. It was projected to the right in the dark area about one foot away from the patient, and was visible even when she closed her eyes. This image persisted for about three minutes, and was succeeded by an intense throbbing pain in the left temporal region. This was followed by a feeling of nausea. The pupils were four millimetres and responded rather sluggishly to light stimuli, but reacted promptly to accommodation and convergence.

O. D. V. $\frac{5}{12}$. Type 0.50 D. 15–30 centimetres.

Muscle balance, at 5 metres, exophoria 1°, right inferior hyperphoria ½°.

O. S. V. $\frac{5}{10}$. Type 0.50 D. 15–25 centimetres.

Muscle balance, at 33 centimetres, orthophoria.

The optic disks in both eyes were of a grayish tint and presented somewhat of a "filled-in" appearance. The edges of the disks were blurred, the lymphatics of the retinal vessels were full, and the vessels themselves were tortuous. I considered these changes to be indicative of a previous neuritis, probably attendant upon the childbed fever which she claims to have had ten years previously. A careful study which was made of her visual fields showed them to be of normal extent for form as well as for color. As the patient sought treatment on account of symptoms of asthenopia, I ordered her atropia and obtained the following result:

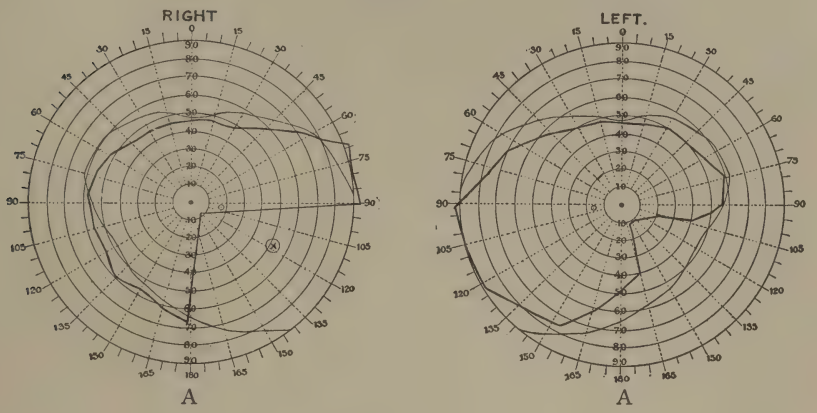
O. D. + 0.50 C. Ax. 110° V. = $\frac{5}{5}$.

O. S. + 0.50 S. with + 0.75 C. Ax. 175° V. = $\frac{5}{5}$.

A few days after she had worn this correction, and before the effects of the mydriatic had entirely passed away, she returned to me

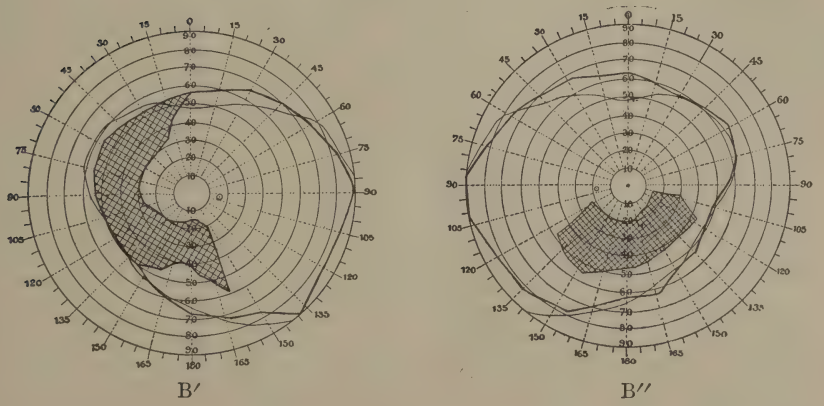
with a most anxious expression, with the complaint that the appearance of the bull's eye had returned after the lapse of a year, and with it the dreadful throbbing pain in her left temple. Synchronous with the appearance of the eye she had a sensation of numbness in her right side from the shoulder down. An examination revealed that this side of the body was in reality anesthetic. The face was unaffected. She says that she was somewhat nauseated and stated

FIG. 1.



A A

FIG. 2.



B′ B″

that she had vomited the night before, which brought some relief to her head. After persisting a few minutes the eye would disappear, but would reappear about every twenty minutes. Her fields (Fig. 1, A), which were taken at a period when the scotoma was present, showed a partial right temporal hemianopia, the loss in the field being limited to the inferior sector. The eye was projected in the blind area. The patient was referred to Dr. Charles W. Burr, who sub-

stantiated the diagnosis of migraine and placed her upon the proper treatment. She returned to see me a few days later. The hemianesthesia had left her, and in its place she complained of a sensation of flushing over the entire body, more marked, however, on the right side. As the visual spectrum still persisted, I made another study of her fields. These seemed to be of a different type from those made a few days before, the hemianopia being upon the left side, B′. It was only when the headache was most intense that the scotoma was positive, for at other times objects could be seen in it, although with changed appearance. For example, the white quadrant of the perimeter would often appear bisected, or, again, one corner would be cut off; again, it would seem very minute, and at times it would be lost altogether. Colors were not perceived in the area of the scotoma. Directly after this field was secured the right eye was bandaged, and the field of the left eye studied. In this eye the scotoma was directly below, and presented the same characteristics as that in the fellow-eye. When the scotoma left the field it could always be reproduced by testing the field in that position. Remarking the tendency which the scotoma had to shift about, the field of the right eye was taken once more, as shown in Fig. 2, B″. The scotoma was now in the inferior portion of the field, and corresponded to that which was observed in the left eye. It is interesting to note the rapidity with which the scotoma shifted itself about. Although taken very carefully, the fields were rapidly obtained by the McHardy perimeter, so that not more than half an hour was consumed in obtaining both. When the fields were being taken the patient was perfectly calm and collected, and there were no manifestations of vasomotor changes in the face. At no time did the scotoma involve the fixation point. It was curious to note the way in which the patient described the object when viewed in the affected area. At times it would appear glistening white and rapidly fade out of sight, and then again it would have the peculiar distorted outlines just referred to. At times the white object would appear red, again blue, and then a variety of colors. After a few days these visual phenomena disappeared and have not returned, after a period of six months. Her headaches are better, and she has not had any disturbing sensory or motor phenomena.

Hysteria is accompanied by hallucinations and phosphenes of different kinds, and, as in its other manifestations, the ocular symptoms may simulate those of all other diseases. As particularly suggestive of this form of disease, however, mention must be made of monocular diplopia and polyopia, which Parinaud thinks depend upon a disturbance of accommodation. Knies believes the hallucinations in this type of disease to be, more properly speaking, illusions, and

says that they are similar to those observed in alcoholism, being due to a false interpretation of objects which are perceived entoptically.

In addition to these phenomena which are provoked by an irritation of a slight and transient character, there are similar sensations which are induced by the grosser mechanical action of neoplasms, and connective-tissue formations upon the brain cortex. Instances of progressive paralysis and locomotor ataxia have been reported where there were scintillations resembling those of migraine. Hogg refers to a very interesting case, which has been recorded by Dr. James Johnson, in which phosphenes and hallucinations had been excited by a large hydatid cyst within the brain. Cerebral tumors are also occasionally accompanied by hallucinations as well as by the simpler forms of visual sensations. Of particular interest, however, is the class of cases to which Peterson has called attention and to which he has given the name of homonymous hemianopic hallucinations. This author claims to have been the first to have observed this form of visual sensation in insanity, but gives Seguin the honor of priority in the description of this type of hallucination. These hallucinations may be but transitory, prodromal of migrainous lesions which are accompanied later on by complete hemianopia, or they may originate after the loss in the visual fields has occurred. In this latter variety the objects are seen in the blind area and may persist from a few days to several months, depending upon the degree of irritation. According to a number of observers the presence of hallucinations in the hemianopic areas presupposes the integrity of the occipital cortex, as this class of psychologists believe that this portion of the brain is alone capable of originating such sensations. There are others, however, who claim that derangements of the central organs of perception can occasion these perceptions. The following case will serve to illustrate a not infrequent type of muscæ arising from a cortical irritation. One morning last winter I was disturbed at an early hour by having a well-known club-man come hurrying into my office in a highly disturbed state of mind, by reason of a star-like figure of brilliant coloring which persisted in his field of vision despite his efforts to brush it away. Knowing the man's habits, I soon succeeded in calming him after I had elicited the information that he had indulged rather freely in beer the night before, and the scotoma was made to disappear by the administration of an active cathartic.

The sensations which have just been described have all been of central origin, exponents of some cerebral derangement, but there are other simpler visual phenomena, frequently resembling these very closely, which are symptomatic of ocular disease or physiological

manifestations. These appearances do not by any means occur in all cases of inflammation of the nervous apparatus, but they are not uncommon in affections of the external layers of the retina and in acute optic neuritis. They also occur in detachment of the retina, in connective-tissue degenerations of that membrane, and in stumps of the optic nerve that have been left irritable by enucleation. At times a shining light will remain more or less constantly before the eyes, sometimes with rainbow colors, or at times there will be the appearance of shining stars surrounding and confusing objects. In macular disease and in retrobulbar neuritis it is not uncommon for the patient to see a black disk before the eye which increases in size as the affection proceeds, becoming larger and larger until at last it covers the field of vision.

The perception of phosphenes is not always in direct proportion to the degree of the retinal stimulation, being dependent in large measure upon the nervous susceptibility of the patient. In phlegmatic individuals phospenes of great brilliancy will often be totally ignored, whilst to an oversensitive nature they might occasion the greatest alarm. In many cases these visual sensations often continue when the sensibility of the retina has been completely extinguished, and their presence is hailed with delight by the unfortunate patient, as they lead him to indulge in hopes that his vision is about to be restored. Many take the greatest delight in observing the different phases which these phosphenes present. A lady with a lively imagination came to me several months ago and asserted that she saw the perfect outlines of a human nose that was quite black and was projected about a foot down and out from the eye. An ophthalmoscopic examination revealed a beginning atrophy of the optic nerve, and a study of her fields showed a relative scotoma in the position of the nose. Under high doses of potassium iodide the phantom nose grew gradually more transparent, streaks of bluish and of yellowish light appeared through it, and it became smaller and smaller. One day she came to tell me that along-side of the nose she now saw the details of half of a human eye, black in the centre, surrounded with different colored circles. She has a new series of pictures at every visit, and never tires with their description.

Phosphenes may also be originated by the action of rays of light and of electricity.

Momentary exposure to a very bright light may induce impairment of vision and give rise to a visual sensation by destroying the sensibility of the retina, and most of us have experienced the after-images which result from an unguarded and too prolonged observation of the sun.

Quite analogous to its action when made the object of external stimulation can the retina react to internal sources of irritation which stimulate it and give rise to subjective light or color sensations. An instance of this is the phosphenes which accompany electrical stimulation upon the opening and closing of the current, and, as this occurs even after the retina and its conducting apparatus is destroyed, it would seem to be a proof that excitation of the centres alone is capable of originating these sensations without the agency of any peripheral excitation.

Phosphenes may also be induced mechanically by pressure upon the globe. We are all familiar with what is commonly known as "seeing stars," which frequently follows the act of sneezing and is constantly present after blows upon the eye. Similar sensations may also be produced by pressure upon the globe with the finger. By pressing upon one side of the eye immediately there is produced, provided the nervous apparatus is healthy, a sensation of light upon the opposite side which exactly reproduces the form of the compressing body. If the pressure is exerted in the axis of the eye, then the phosphene is central and appears as a dark spot surrounded by a yellowish circle. A knowledge of these facts led M. Serres D'Uyes to apply the principles upon which it depended for recognition of the state of sensibility of the retina, and he accordingly introduced a method of examination which he called phosphenic retinoscopy. Although the introduction of the ophthalmoscope has dismissed the value of all entoptic methods, much information can be gained of the integrity of the intraocular condition by eliciting phosphenes in the manner which he has described. As considerable uncertainty attends its application, however, the method has been almost wholly supplanted by the more precise one of perimeter examination. As an instance of phosphenes produced by pressure I would refer to the interesting case of Sir David Brewster's, cited by MacKenzie, of a patient who had a small tumor upon the upper lid which excited luminous circles by pressing upon the globe. A patient of mine who was wearing a pressure bandage for the cure of a detached retina, also complained greatly of large circles of light as soon as the bandage was applied.

Along-side of the phosphenes which are produced mechanically should be arranged those which result from overaction of the accommodation and of convergence. This variety of visual sensations is especially liable to appear in cases where there is a rapidly increasing ametropia, as in myopia, and where there is insufficiency in the power of accommodation, as in hypermetropia, or where there is a faulty muscular balance. It is usually seen in young persons, particularly

students who have been subjecting their eyes to an unnatural strain prior to examinations. It is not an uncommon complaint of theirs, that after a night's hard reading they have been denied the sleep their wearied brain demands by the presence of dazzling stars, colored rings, and myriads of bright figures dancing before their eyes. If the student persists in his near work and does not rid himself of the eye-strain by wearing the proper correcting glasses, the condition of retinal hyperesthesia may turn to one of retinal inflammation, and the functions of the retina may become seriously impaired for prolonged near work, and the phosphenes which had before subsided after a short rest to the eyes will last longer, and the image of any object which is regarded will be retained for a very appreciable length of time. These sensations are the expressions of a retina that has been irritated by the unequal tuggings of an extraocular muscular apparatus that was too weak to endure the strain which had been placed upon it by a faulty muscular balance or by the fatigue of a ciliary muscle that had been doing double duty in a hypermetropic eye.

It sometimes happens that a number of spots of different colors appear before the eyes. Hilbert has recently observed an interesting case of this kind. He believes that their origin is peripheral, whilst he thinks that the general coloration of objects which is seen after the administration of certain poisons is of central origin.

As we have seen, phosphenes are induced by stimulation or irritation of the retina or of the optic nerve and its prolongations ; muscæ are occasioned by the perception of shadows of light which are thrown upon the retina by homocentric light of the parts lying within the eye. In earlier days, before the valuable invention of Helmholtz had rendered a closer study possible, all observations of the different forms and opacities of the refracting media, physiological as well as pathological, were made by means of entoptic examination. Jago, an English author, deemed the matter of such importance that he devoted an entire volume to its elucidation, and claimed the ability to locate pathological opacities within the eye by a comparison of their position with that of his own physiological motes. Since the introduction of the ophthalmoscope, however, the importance of this mode of examination for diagnosis has been thrown completely into the shade, although facts of great physiological interest can be solved by it.

Although the mechanism of the eye is extremely delicate and accurate, its media are far from being uniformly transparent, and it possesses many imperfections which prevent the function of the component parts from always being performed with absolute perfection. In addition to the blind spot occasioned by the entrance of the optic nerve, there are numerous imperfectly transparent parts in all of the

refracting media. The rays of light in passing through them undergo local absorption and refraction and cast shadows upon the retina. These motes or muscæ, as they are usually called, may become evident when one looks directly towards the sky or regards some resplendent and highly illuminated object, as a field of snow, a sheet of white paper, or the field of a microscope. They may also be studied, and their positions ascertained by the well-known experiments of Purkinje, Listing, and Donders.

Were it not for the fact that the great majority of people are unconscious of these imperfections which the eye naturally exhibits as an optical instrument, its efficiency as an organ of vision would be seriously interfered with. Happily, however, they are totally ignored in the vast number of instances, by the habitual inattention which is paid to any indirect visual impression.

The attention of some, whose eyes are peculiarly sensitive or have become greatly weakened by over-fatigue and other causes, is at times engaged by these bodies, however, and their perception often excites the greatest anxiety and discomfort. Such individuals become the ready prey of charlatans, who add to their fears by the assurance that these motes will lead to speedy blindness unless relieved by their nostrums. These poor dupes are then subjected to years of the severest treatment, only to have their muscæ still undiminished and their minds still burdened with anxiety and fear of approaching blindness.

The presence of physiological muscæ is a symptom of no great consequence, for they are observed in persons whose eyes are perfectly healthy, but there are other muscæ which are the expression of some diseased state. This second or pathological variety of muscæ is occasioned by an opacity of some of the parts of the eye which are usually transparent. The faintest nebulæ of the cornea will throw a shadow, and the slightest impediment to the passage of the rays will distort the retinal pictures. A layer of mucus upon the cornea will not only double, but will produce a multiple effect of images upon that membrane. A young lady under my care with diffuse corneal nebulæ sees twenty distinct minute moons whenever she regards that body. In referring to the disturbance of objects occasioned by the irregular astigmatism produced by the swelling and the splitting of the fibres of the lens in incipient cataract, Becker[1] cites the case of the lamplighter of a castle, who was so startled by the myriad of lights which burst upon his gaze, after he had lighted the lamps in the banquet hall before a feast, that he feared a ghostly visitation. This

[1] Graefe, Saemisch Handbuch.

disturbance of images is one of the earliest signs of incipient cataract, and often leads the patient to consult a physician before any appreciable diminution in the vision has occurred. The further development of the opacities can often be readily and accurately followed by the study of the entoptic phenomena.

The most common entoptic phenomena are those caused by the presence of floating bodies in the vitreous humor, the so-called *muscæ volitantes*. These assume various forms, sometimes resembling spots of various shapes and sizes, as that of a cobweb. More often there is the likeness of an insect, as a spider, worm, or fly. Sometimes they look like streaks or lines, and sometimes they resemble sparks and stars, strings of bright beads, or filamentous bands. Although usually kaleidoscopic, changing their form rapidly and frequently, at times they remain stationary, and Demour states that a great number of people had come under his notice who had been conscious of muscæ for forty years or more, without the slightest change in their number or form.

When they are numerous they interfere greatly with vision and are a source of great annoyance. They move with the eye and appear to descend when the eye is turned upward, and *vice versâ*.

These motes are most commonly seen in myopic eyes, for in this form of ametropia, the retina being situated more posteriorly, bodies floating in the vitreous project large diffusion circles upon it; but they are also observed in many diseases of the tunics of the eye, and whilst they may often be of a harmless nature, they may be indicative of grave change in the fundus, and their presence should always be made the occasion of a careful ophthalmoscopic examination.

THE IMPORTANCE OF URINARY ANALYSIS WITH THE STATISTICAL STUDY OF ONE THOUSAND ANALYSES IN GYNECOLOGICAL CASES.

By Homer C. Bloom, M.D.,

Instructor in Gynecology at the Philadelphia Polyclinic and Out-Door Surgeon to the Gynécéan Hospital.

It should be a rule, with no exceptions whatever, to examine, at least once, the urine of each case that comes under observation. This was never more forcibly impressed than a few months since, when a woman presented herself at the Gynécéan dispensary on account of a most obstinate pruritus of the whole genitalia.

Upon examination it was found that there was a most pronounced

irritation and eczematous condition, not only of the genitalia, but of the thighs, almost to the knees, as well. The patient was wretched, indeed; she could obtain sleep only by the use of drugs; she had been curetted three times within a period of two years, each time for a leucorrhea, which was said to be the cause of her trouble. She had the benefit of the very best gynecological service, all to no purpose; there were no special urinary symptoms; all questions pertaining to this point were answered negatively.

A lotion was advised and the patient requested to bring a sample of her water at her next visit. This examination showed an enormous amount of sugar.

The etiology being established, the treatment was clear; the patient's local trouble and discomfort immediately improved.

The 1000 cases, whose statistical analyses follow, have been largely taken from the records at the Gynécéan Hospital. In all suspicious cases a microscopical examination was made.

Of the 1000 analyses there were 11 per cent., or 110 instances, in which albumin was found.

Of the 110 cases containing albumin, casts were found in nearly 25 per cent., or twenty-eight cases. These casts varied from epithelial to granular; the predominating casts being hyaline and granular.

In 75 per cent. of the 110 cases the albumin was due to pus, which frequently originated in a cystitis.

In one case hyaline casts were found, although no albumin was present in the urine.

In 1 per cent., or in ten of the analyses, more or less sugar was found. These cases nearly all gave a clear history of diabetes, but had some associated pelvic trouble in connection therewith.

One of the most interesting observations in these analyses was the high specific gravity so often met with, averaging not less than 1025 to 1030, and occasionally as high as 1040. In these high-weight urines there is frequently a relationship which is not dependent upon the amount of solids excreted, and is accompanied by such a condition as dyspepsia, especially the nervous form, irritability, depression of spirits, lassitude, and often marked hypochondriasis, associated often with neuralgic pains and the general symptoms of neurasthenia.

The urine in these cases is usually loaded with uric acid, lithuria, or oxalate of lime, oxaluria; or phosphatic deposits forming two classes, the alkaline phosphates or the earthy phosphates of lime and magnesia, phosphaturia.

Another frequent anomalous condition of the urinary secretion in these cases was the large number in which indican was found to be present. In many of these cases there was pelvic inflammatory

trouble. The relationship is probably explained by the fact that indicanuria is often present in wasting diseases, or wherever albuminous substances are undergoing rapid decomposition, as in peritonitis, etc., and it was also frequently noticed among cases in which constipation was the main symptom.

Acidity of the urine largely predominated, being noted in about 75 per cent. of the cases.

To recapitulate, these 1000 analyses gave the following results:

The urine was acid in 75 per cent. of the cases.

The specific gravity averaged between 1025 and 1030, and albumin was present in 11 per cent. of the cases.

Twenty-five per cent. of the albuminous urine contained casts; those predominating being the granular or hyaline.

In 75 per cent. of the remaining analyses in which albumin was present, the albumin depended upon the presence of pus, associated with cystitis.

In one case hyaline casts were found, but the urine was not albuminous.

In 1 per cent. of the cases sugar was found; lithuria, oxaluria, phosphaturia, and indicanuria were frequently found.

A CASE OF CONGENITAL ABSENCE OF THE VERMIFORM APPENDIX.[1]

By John M. Swan, M.D.,

Assistant Demonstrator of Anatomy in the University of Pennsylvania; Clinical Assistant in Surgery in the Philadelphia Polyclinic.

The specimen which I present was taken from a male subject in the dissecting-room of the University of Pennsylvania. The apparent age of the individual was 40 years.

In examining the external aspect of the cecum, as it lay in the body, no trace of a vermiform appendix could be found. The intestines were then removed and a careful search instituted, but still no tissue was discovered which in any way resembled the appendix. The longitudinal bands of muscular fibres were traced down to their termination, and the wall of the bowel presented a perfectly smooth appearance, the serous covering of the bowel presenting no cicatricial tissue, thus indicating that this portion of the intestinal canal had not suffered at the hands of the surgeon. On examining the cecum from its internal surface the ileo-cecal valve was seen to be normal in

[1] Paper read before the Philadelphia Pathological Society, October 24, 1895.

situation and appearance. The normal situation of the vermiform appendix is on the posterior wall of this portion of the intestine, just internal to the position of the ileo-cecal valve, and on the mucous membrane of the bowel is seen a dimple marking the opening into the lumen of the appendix. No such dimple could be detected in this specimen. Situated below the orifice of the ileum is an oval ulcer, which has involved the coats of the bowel down as far as the serosa. The base of this ulcer is smooth and shining, the margins are elevated, and for some distance from the raised border there is presented an appearance resembling that of several miliary tubercles. A second ulcer, similar in appearance, is seen at the apex of the cecum. Owing to advanced post-mortem changes, microscopic sections, which were made, fail to show the characteristic appearance of a tuberculous ulcer, and the diagnosis of tuberculous ulcer has to be made from the macroscopic appearance alone. The abdominal wall presented no scar which would point to the performance of a celiotomy at any time.

Taking these facts into consideration, I call this a case of congenital absence of the vermiform appendix. The explanation of the condition is that the head of the colon has developed equally in all directions, thus including in the cecum that portion of the intestine which is usually undeveloped, and which represents the lumen of the large intestine as it is first formed.

In reviewing the literature of the subject I find a case reported in which the appendix was absent in a male child, who died, four days after birth, from intestinal obstruction. In this case, however, at autopsy, the small intestine ended in a blind pouch at the lower end of the ileum, and there was no connection between it and the large intestine at any point corresponding to an ileo-cecal valve.[1]

Struthers, in his paper "On the Varieties of the Appendix Vermiformis, Cecum, and Ileo-cecal Valve in Man,"[2] mentions no case of congenital absence of this portion of the alimentary canal. This paper gives as the shortest specimen seen, a small rudimentary process three-quarters of an inch in length. Struthers also mentions a case in which the orifice of the appendix was entirely closed, and in which, on the back of the cecum, was a small thickening, like a stump, indicating the position from which the appendix had arisen. This condition was evidently due to retrograde changes in the organ.

Piersol[3] gives as the extremes of length of the appendix seventeen millimetres (Zuckerkandl) and 230 millimetres (Lushka); but

[1] J. C. Oliver, M.D., in Cincinnati Lancet-Clinic, Vol. XXVII, p. 203.

[2] Edinburgh Medical Journal, Vol. XXXIX, Part 1, p. 289.

[3] "Obliteration of the Appendix Vermiformis," UNIVERSITY MEDICAL MAGAZINE, Vol. VII, No. 12, p. 893.

he mentions no case in which there was an entire absence of the process.

Wharton[1] reports cases of congenital absence of cecum and a portion of the colon, but no case of the presence of a well-developed cecum with absence of the appendix vermiformis.

Dr. Guitéras[2] has seen one case occurring on the autopsy-table at the Philadelphia Hospital, in which the vermiform appendix was congenitally absent. This case, however, has not been reported.

Kelynack[3] says that the vermiform appendix is a constant structure in man, but not in the higher animals generally. In speaking of the variations in size, Kelynack[4] states that "complete absence of the appendix has been recorded by Ferguson and others." In referring to Ferguson's paper,[5] I find that the author made 200 careful dissections of this portion of the body, the cecum, and "in one instance only could it [the appendix] be said to be absent."

Kelynack[6] quotes Darwin[7] as saying, "it [the vermiform appendix] is occasionally quite absent." He further quotes Treves[8] as saying, "it is quite common to find, in post-mortem subjects, that the vermiform process is wanting." This statement of Mr. Treves, however, seems to be sweeping, and not founded upon the facts of the case. Taking into consideration the few instances reported in literature, it would seem that the condition is far from common. The conservative words of Darwin seem to be better applicable to the case, and we may still, even in light that closer attention to this region has shed upon our knowledge, say that the vermiform appendix is "occasionally" not to be found.

I am indebted to Dr. Frank D. Kilgore, who was dissecting the subject, for calling my attention to the specimen.

[1] Keating's Cyclopedia of the Diseases of Children, Vol. III, p. 315.
[2] Personal communication.
[3] A Contribution to the Pathology of the Vermiform Appendix, London, 1893.
[4] Loc. cit.
[5] American Journal of the Medical Sciences, January, 1891.
[6] Loc. cit.
[7] The Descent of Man, 2d Edition, 1874, p. 21.
[8] The Surgical Treatment of Typhlitis, 1890, p. 14.

A Remarkable Case of Hydrocephalus.

MEMORANDA.

A REMARKABLE CASE OF HYDROCEPHALUS.

Through the courtesy of Professor B. C. Hirst, there has been recently placed in the Obstetrical Museum of the University of Pennsylvania a specimen of fetal hydrocephalus, in which the head weighed eight pounds, together with the fluid drawn from it, and measured twenty-three inches in the fronto-occipital circumference. The history of the case is as follows: The mother was 28 years of age, five feet two inches and a half in height, weighing ninety pounds. There was no specific manifestation, nor any constitutional disturbance in pregnancy, other than that incidental to normal gestation. She had been twice pregnant previously. The labor took place at term in each case, the last time twins were born. Each time delivery was effected by means of the forceps, the children surviving the operation.

In the present instance she went one month beyond her expected time. Before labor began the membranes ruptured spontaneously; a profuse discharge escaping with a gush. Four hours afterwards labor-pains appeared and continued half an hour apart for twenty-four hours, when the breech was delivered. The head was so tightly engaged that it could not be released. The woman was etherized and Tarnier's forceps was applied, but it slipped. The body was then severed from the head and the same instrument reapplied, but this attempt also failed. The cephalotribe (Hodge's) was tried, but it too slipped. Owing to the elevation of the head and the presentation of the base of the skull, it could not be perforated. Recourse was had to the cranioclast, but without success. This instrument, however, brought the head low enough to admit of puncture. About two quarts and a pint of serum were drawn off, when delivery was accomplished with the cephalotribe.

There was no laceration of the cervix or perineum, nor any other accident. The woman made an uncomplicated recovery.

Alexander Fulton, M.D.

Philadelphia, Pa.

A SUCCESSFUL CASE OF LIGATION OF THE SUPERFICIAL FEMORAL ARTERY FOR POPLITEAL ANEURISM.

Aneurisms of the popliteal artery constitute a very large proportion of all those encountered by the surgeon, this artery being more frequently the seat of the disease than any other, except the thoracic aorta. Of 84 cases of popliteal aneurism collected by Hunter, 41 were on the right side and 43 on the left; of 143 examples, 123 were in males, 8 in females, and in 12 the sex was not given. The largest number of cases occur between the ages of 30 and 40, though instances of the disease have been observed as early as the twentieth year of life, and in one case reported by Syme it occurred at 7 years. Not infrequently popliteal aneurism affects both vessels simultaneously. This condition has been noted 11 times in 137 cases recorded by Crisp.

The anatomical arrangement of the structures about the vessel render the artery peculiarly liable to aneurismal dilatation. It is subjected to a great deal of movement and often to very violent strain. Experiments upon the dead body show that the inner and middle coats of the vessel may be ruptured by extreme flexion of the knee, and that a like rupture in a smaller percentage of cases may be brought about by forcible extension. Moreover, except when the limb is in a position of extension, the popliteal artery, like the thoracic aorta, is much curved. Then, again, the artery divides into two large vessels, and it is a well-known fact that the point of bifurcation of an artery is a favorite seat for aneurism. Lastly, the artery is supported by the lax tissues of the popliteal space, and the support of strong muscles given elsewhere to so many large vessels is practically absent.

The case I wish to report is that of a man aged 47 years, who gave the following history: He has always been a moderate drinker; had syphilis twenty-six years ago. One year ago last winter he fell from an engine and received a severe shaking up, but no particular injury was noted. Two or three days after the injury the patient says he noticed a small lump occupying the popliteal space, which he claims with absolute certainty was not there previous to the injury. From that time on the swelling has gradually increased in size, and within the last few months with great rapidity.

The aneurism occupied the entire popliteal space of the right limb and seemed to extend up into Hunter's canal. The circumference at the knee on the right side was eighteen inches, and on the left side fourteen inches. The leg was edematous, there was great pain in the tumor on walking, and the pain was so great at night that

he was unable to sleep without the use of opiates. As the case was seen during the summer months I was unable to secure the aid of a corps of medical students with the view of trying digital compression. I therefore ligated the superficial femoral at the apex of Scarpa's triangle on the 12th of last August. The wound healed kindly without suppuration, and the patient was discharged at the end of a month cured. I saw the patient in October, and very little difference was then to be noticed between the two limbs.

ELLWOOD R. KIRBY, M.D.,
Assistant Instructor of Clinical Surgery in the University of Pennsylvania; one of the Attending Surgeons to the Out-Patient Department of St. Agnes's Hospital.

GALL-STONE IMPACTION.

I WAS called to see Mrs. P., who had the characteristic pains of biliary colic. Hypodermic injections of morphine relieved the sufferings for a few hours only.

The third day obstinate constipation set in, and both myself and the consulting physician believed the condition one of obstruction of the small intestine, perhaps at the ileo-cecal valve.

The woman being very fleshy, examination was unsatisfactory, and consequently no operation was undertaken.

Fecal vomiting set in on the morning of the third day and continued until the middle of the fourth day of her illness, when the patient died from exhaustion.

Autopsy six hours after death. A general autopsy not being allowed, we opened the abdomen to discover the seat of the obstruction.

There was no abnormality in either small or large bowel. On examining in the region of the liver, to our surprise we discovered what proved to be an enormously distended gall-bladder resting on the colon, and holding it down tightly so that nothing could pass.

A calculus had obstructed the common bile-duct so that the bile collected in the gall-bladder.

The size of the gall-bladder, after being removed, was by actual measurement nine inches long and nine and three-quarters inches in circumference, with one gall-stone, as stated above, impacted tightly in the common duct, and seventeen others loose in the gall-bladder, together they weighed nearly 200 grains.

A. T. WELKER.

COLLOMSVILLE, PA.

CLINICAL DEPARTMENT.

UNIVERSITY HOSPITAL.

[Clinic of Professor H. C. Wood.]

PROBABLE STRYCHNINE POISONING.

Gentlemen: I propose to-day to discuss before you the case which you will remember died here in our clinic a week ago; especially calling your attention to it as teaching a very important lesson, much needed to be learned by certain prominent members of the American medical profession,—namely, that it is impossible, except in rare cases, to diagnose with certainty a case of poisoning from the symptoms alone. The records of our criminal courts show that over and over again men have sworn that a death must have been due to a certain poison; an affirmation which in my experience has been almost in every case far beyond the truth. If these gentlemen had said, "the symptoms were consonant with a certain poison," they might have been correct, but their oaths that the alleged victims must have died of a certain poison, ending as in many cases they have done in hanging, are among the anomalies of American medical history.

I remember a case in which there was a distinct history of a poisonous dose of morphine having been given from a motive, and the exact symptoms of an opium-poisoning, in which I worked assiduously for eight hours to save the patient without success, supposing that the case was certainly one of opium-poisoning; but in which the autopsy and subsequent admissions demonstrated that the patient died of natural disease, and that the alleged opium giving was a myth.

Strychnine is certainly among the poisons whose symptoms are considered most characteristic, but the patient died before us, and we have the results of the autopsy; and I still tell you to-day that it is impossible to positively decide with the present evidence whether the case was one of natural disease or of strychnine or other poisoning.

There are also one or two important practical lessons in regard to the treatment of such a case to be drawn from what happened here last week; and as the whole course of events was over in six to eight

minutes after the man entered the clinic room, and as there was so much haste and confusion as to interfere with your seeing, I narrate to you the circumstances.

You will remember that we were interrupted in our clinic hour with word that a case of poisoning was being brought into the hospital, and that a minute later the man was carried in. All that Dr. Small, the resident physician, who picked the man up in the street, knew was that the patient was said to have been suffering from headache, and that about thirty minutes before he reached me he had taken a headache powder. Directly after he was picked up the man had a violent convulsion, with loss of consciousness; ten minutes later in the clinic room, with eyes closed, he seemed unconscious; the moment I touched him reflex shudderings and irregular partial spasms occurred. I started to undo the man's shirt, when, without opening his eyes, he said, "Look out there, don't break those shirt-buttons." I turned to you and said, "I think this is hysteria, because of the excitation of the reflexes, of the loss of consciousness in the past convulsion, and of the peculiarities of consciousness and mental condition now present." It seemed incredible that a man who was on the borders of death from a strychnic or organic convulsion could be so concerned about his clothes. I gave him a hypodermic of water; at once there was relaxation, and when I tapped the patella no jerking movement as before. I said, "You see my diagnosis is confirmed." Almost instantly, however, there came another convulsion. I then said to you, "This cannot be hysteria, the convulsion is too severe and evidently dangerous; it is probably strychnine-poisoning." I ordered chloroform and chloral to be gotten at once. I asked my colleague, Dr. White, who was in the hospital, to wash out the stomach. A gag was put in the man's mouth, and the jaws opened moderately. No attempt, however, was made to pass the stomach-tube, as, before this could be attempted, a furious tetanic convulsion came on, and the respiration was arrested; death by cramp of the respiratory muscles,—asphyxia, followed immediately.

The autopsy was made by the coroner's physician some hours subsequently (not at the hospital), and Dr. Small, who was present, states that the brain membranes and cortex were found very much congested; that there was an excessive exudation of fluid beneath the membrane; that there were deposits of lymph and other evidences of chronic inflammation very distinct between the hemispheres along the longitudinal sinus, and that the occipito-parietal fissure on one side was occupied by a long, thin, meningeal clot. With this history, what was the cause of death?

We may consider it established that the man had some chronic

meningitis of very mild persistent type; were the convulsions due to this? Two facts in the symptoms seem to render such explanation improbable. The most important of these is the condition of the spinal reflexes, which were certainly grossly exaggerated; the second and least portentous is the condition of consciousness before the last convulsion. In a series of purely meningeal convulsions, following one another at the rate of four or five minutes apart, it seems to me highly improbable that there would be intervals of consciousness. On the other hand, the cerebral congestion, the serous exudation under the membranes, and the meningeal clot could all be produced by the strychnic convulsion; not as the outcome of any direct effect of the strychnine, but as the result of the enormous blood-pressure produced by the simultaneous occurrence of asphyxia and contraction of all the muscles of the body. Corroborative of the view that the case was one really of strychnine-poisoning is the fact that so far as I could judge in the rapidly-shifting hurry of phenomena, the convulsion preceded the loss of consciousness, so that the latter was due to asphyxia and the convulsion was spinal, not epileptiform.

It seems to me, therefore, still very probable that the death was due to the excessive dose of strychnine. I have had handed to me to-day by the son of Dr. ——, family physician to Mr. ——, a powder, which is marked, "A portion of the powder supposed to have been taken by Mr. ——;" and I propose to have it examined and reported upon. Even, however, if this powder be found to be strychnine, the case of strychnine-poisoning could scarcely be made out with absolute positiveness, because it remains a supposition whether or not the powder really represents that taken by Mr. ——.

And now in regard to the therapeutic lesson I would draw from the case. You will remember that I have always taught you not to use the stomach-pump in strychnine-poisoning, because of the danger of convulsions being excited by the effort to open the mouth and pass the tube. I do not remember to have seen this teaching anywhere inculcated in print; nor have I had any but theoretic reasons upon which to base it. The experience of last Wednesday seems, however, to show its correctness; so far as we can judge it was the opening of the mouth of the patient which was the immediate cause of the (probably reflex) convulsion in which the patient died. Certainly, hereafter in any case under my care I will take the chances of absorption of further strychnine from the stomach rather than the risks of washing out the viscus.

[At a subsequent clinic Dr. Wood reported that Professor Wormley had found the powder to be pure strychnine, and further stated that, in his opinion, the case was one of strychnine-poisoning.]

ALUMNI NOTES.

The Laying of the Corner-Stone of the University Dormitories.

The corner-stone of the magnificent dormitory buildings of the University of Pennsylvania was laid on Wednesday afternoon, November 5, by Bishop Whitaker, in the presence of the officers and students of the University and many distinguished guests. The introductory address was made by Provost Harrison, who spoke as follows:

Gentlemen: It is only proper at this time that I should make a brief statement. We see here before us the beginning of the dormitory system of the University. We may fairly say that the plans were only adopted after a most patient study of the best dormitories, not only in this country, but in England, and to our architects, Messrs. Cope & Stewardson, we owe our sincere thanks. Themselves college men,—two of them University of Pennsylvania men,—they have from the outset thrown themselves heart and soul into the spirit of the undertaking, and they have never hesitated to visit and study and change, until they had become themselves thoroughly satisfied that they could do no better.

For the encouragement which led to our being willing to undertake the operation, we are indebted in the first place to a University man, a member of the class of '62, whose generosity to us has been twice felt within the past few months, and we are further indebted to a number of our towns-people, some of whom have contributed largely for the erection and naming of houses in the system. Many other citizens have joined hands with us in the work, and by united effort we have undertaken as much as will provide rooms for 357 students. The whole amount, even for this, has not yet been raised, but our experience bids us go hand-in-hand with hope, and we believe that, upon proper representations, the citizens of Philadelphia will give us the means to finish what we have agreed to do.

To the city of Philadelphia we owe a meed of thanks, as usual; for Thirty-seventh Street, which bisected the dormitory plot, has been vacated by the city, so that the University will police the entire quadrangle by day and by night.

I need not refer to what we hope this undertaking will mean to the University; that will more properly be referred to by the distinguished speaker of the day. I may be allowed, however, to take this chance to refer to our earnest wish that the whole plan may soon be completed. Directly across Thirty-seventh Street, parallel with Pine, our wish is to erect—and that some citizen will give us the means to erect—a Common Hall, where, as at Memorial Hall at Harvard, 1200 to 1400 of our students, with the University Fellows and with many of our teachers, may dine together in common; where, in fact, they may have, under some co-operative plan, all due provision during their university life. I do not mean a Commons Hall in the ordinary sense of that word,—I mean a noble, stimulating building,—a building upon whose walls may be hung the portraits of those who have well served their

time in any walk of life, whether men of our University or not, association with whom will be a daily encouragement and stimulus to our students. Perhaps the words which I speak now may reach the ear of some man or woman in Philadelphia who will give us the means to erect such a memorial. I would like to see it called the "Lincoln Memorial," after Abraham Lincoln, as the Harvard Commons Hall is known as "Memorial Hall."

Beyond this, space has been reserved in the general plan, at the corner of Thirty-sixth and Pine Streets, for the University Chapel, and I hope that the day is not far distant when its spire will point heavenward,—the most costly and the most beautiful edifice of all our University buildings. If we can succeed in our plans, and enclose this entire acreage with our dormitory buildings, we shall be able to care for 1000 students.

I wish that the community could know how sincerely our hopes look out towards the complete realization of this desire.

It now gives me pleasure to introduce Judge Willson, who has courteously agreed to speak in commemoration of the day. A loyal son of Yale, and president, indeed, of its Alumni Society in Philadelphia, I have never yet gone to him upon a matter of interest concerning the University of Pennsylvania without having received from him help and encouragement. We have thought of no one else in selecting a speaker for this occasion. I wish to thank him now, publicly, for his many acts of helpfulness to me during the few months of my University life.

Judge Willson's Address.

Mr. Provost: The necessary limitations of time imposed by the nature and place of this gathering render it impossible for me to do more than utter words of congratulation to those who are identified with and interested in this great institution,—the University of Pennsylvania. I cannot even attempt to trace in outline its history and development from the time when Franklin, in company with others of like spirit and prophetic outlook, laid the foundations upon which the large results of the present day are rested. They built and planned better than they knew, or even imagined. What they and their immediate successors did to establish, first the academy, then the college, and still later, but early in its history, the University, in the face of obstacles which would have overcome men not inspired by high courage and faith, has been graphically told in the pamphlet prepared by Professor Thorpe and published by the United States government. Nor can I enter into any extended discussion of the value of a college or university to the community where it is located, or of the advantages which have come to science, the arts and practical every-day life from the development in America of the university idea and system.

To-day we are gathered for a definite purpose, and my words shall have special reference to that. In my judgment, this day, and the event which calls us together, are at the threshold of an epoch in the life of this institution which will be more brilliant, more substantial, and more permanent than any that has preceded it.

It is a mark of honor, sir, to an alumnus of another university to be asked to take part in these proceedings. Yet there is, perhaps, a propriety in such a course. The true, the traditional, attitude of the institution from which I esteem it an honor to have graduated has been one of fraternity and good fellowship towards other educational institutions. In this respect, no doubt, it shares the honor of such catholicity with all others which are controlled by the spirit that should be found in every fount of liberal education. Hence, sir, I assume that every college or university alumnus, especially all whose interests centre in this great city, cannot

fail to have a share in your rejoicing to-day. We do not congratulate you upon having entered the front rank among American universities; for this you had already accomplished, despite the difficulties in the way. Nobody can appreciate what some of these difficulties were better than one who has spent his college years, as they are spent at Yale or Harvard or Princeton, in an atmosphere of college ideas, habits, and associations, where students live together, plan together, blunder together, it may be, but yet together constitute a distinct community of common interests and constant companionships. Whether it be study, college songs, athletics, or students' pranks,—all the life is one and distinctive. There is a unity, a compactness, a subtle charm about it all which no one can understand who has not tried it. Difficult it may be to describe, but the memory of his life in the dormitory is perennial and enduring to every student who has shared it. To many a college graduate the training of head and heart received in such associations has been as useful as the sum total of the actual knowledge acquired in the class- or lecture-room. Many a student who, perhaps, would never have become a scholar, has been disciplined for useful service as a man by the opportunities of a college-fence, by attrition with men of different sorts, and from diverse sections, or by the influence of a judicious room mate.

These dormitories, as outlined here before our eyes, and as delineated in the plans of the architects, present a beautiful picture. The plans suggest the quaintness of medieval university architecture, but I understand that the buildings are to be equipped with the appliances of modern taste and convenience. Health and comfort seem alike to have been considered. I sincerely trust that the day is not far distant when the whole scheme of dormitories, chapel, and commons shall be realized. The scheme is comprehensive and complete, as well as picturesque. The benefit to the University would obviously be immediate and vast in the large attractions and advantages which would be held out to students from different parts of the country who need to find temporary homes during their periods of study. Under existing conditions, it speaks well for the standing and equipment of the University that so many of these non-resident students have sought instruction here, especially in the undergraduate departments. The advantage of these dormitories to the University is, however, not far superior to that which will come to the city. Aside from the direct commercial gain which accrues from the presence of a large number of foreign students, there is, I believe, no institution in Philadelphia which is so likely to give to her prominence and prestige as this University. It will be strange if the practical sagacity and local pride of her citizens, to say nothing of a deeper and intelligent interest in the welfare of higher education, shall not soon enable the trustees to complete these contemplated buildings and open them for occupation by a thousand or more of eager, earnest students.

I ought to consume no further time, even upon so important an occasion. It may, however, be a matter of interest and novelty to some if I mention a fact which has been kindly brought to my attention by Dr. John H. Brinton, of this city. It appears from the writings of Dr. William Smith, the distinguished man and accomplished scholar who was the first provost of this University, that the project of supplying dormitories for its students was early in its history considered and planned, —a plan that probably failed of fulfilment because of the troublous times into which the institution fell.

In his postscript to "A General Idea of the College of Mirania," after referring to the demand then existing for young men of education and the short term of college study, Dr. Smith wrote as follows: "But when this demand shall be somewhat abated; when the expense can be reduced, by some proper exhibitions or provisions

to aid those of confined circumstances as in other colleges, and by bringing the youth into a collegiate manner of living (which will be when the buildings now on foot are finished), it is hoped the term of years may be lengthened."

In his "Account of the College and Academy of Philadelphia," Dr. Smith goes even further, for there he says, in connection with a remark concerning the preservation of the morals of students in a city, "When I speak so I would be understood to mean when the youth all lodge in the houses of their parents or in lodgings within the walls of the colleges, a proper number of which are now erecting at a very considerable expense."

And now, sir, allow me to say that the citizens of Philadelphia cordially appreciate the efforts which you, your predecessor in office, the trustees, and the faculties of the various departments of the University have made to bring the institution to the position which it now indisputably holds. They have entire confidence that the proper spirit of university life is cherished here. The growing interest of Philadelphians in this institution and in all that belongs to it and to its student life is natural and commendable. Those of us who have graduated elsewhere have learned to respect the character and strength of your alumni by crossing swords with them in the struggles of professional and business life. We can claim no superiority.

To you, sir, personally, this must be a glad day,—full of realizations, as well as of promise and prophecies. I know you too well to indulge in words of eulogy upon you in your own presence.

It is nevertheless proper for me to say that, in my judgment, no more helpful and inspiring words were ever uttered by one in a position like yours to an incoming class than those with which you greeted the young men who, at the beginning of this collegiate year, gathered in yonder buildings for the first time.

Young men, students of this University of Pennsylvania, take heed to those words. Honor yourselves and the University by diligent study and by clean, manly, righteous living. In the midst of a proper devotion to sports and University contests, do not forget that character is of prime importance, and that self-respect is vastly more valuable and desirable than temporary success or victory.

This University will soon offer to you in Houston Hall facilities which are not excelled, if they are equalled, in any other institution of which I have knowledge. These dormitories must even now tempt you in prospect to their hospitable embrace.

See to it that your aims, conduct, and life are as noble and elevated as your opportunities are ample, and then your memories of the time spent here will carry no clog to effort, but help to stimulate you in coming years to do the work of enlightened, upright men and good citizens in this land of splendid possibilities and great perils.

The copper chest placed within the corner-stone contains copies of the charters and statutes of the University, an historical sketch of Benjamin Franklin and the University, the last published report of the Provost, containing the ordinance of City Councils appropriating the ground on which the dormitories are to be erected, a copy of the catalogue, the commencement programmes of 1895, descriptive pamphlet of Franklin Field, sketch of the history and condition of the University, sketch of the dormitory, with plans, current issues of the daily and college papers, and the official declaration of laying the corner-stone under the seal of the University.

Election of Professors.

At a meeting of the Board of Trustees of the University, held on November 5, Professor Edward Grant Conklin, of the Northwestern University of Illinois, was elected professor of Comparative Embryology, in place of the late Dr. John Ryder; Dr. Edward C. Kirk was chosen professor of Clinical Dentistry, a new chair in the School of Dentistry; and Dr. Harrison Allen, who recently resigned the directorship of the Wistar Museum, was elected Emeritus Professor of Comparative Anatomy.

Appointed to the Philadelphia Hospital.

At a meeting of the Board of Charities and Correction, held on November 12, Dr. Alfred C. Wood, of the Class of '88, was elected a visiting surgeon to the Philadelphia Hospital.

Dr. Charles A. Oliver has been elected an honorary member of the Detroit Academy of Medicine.

Recent Gifts to the University.

Mr. C. C. Harrison has recently announced gifts to the University amounting to $40,000. Of this amount $35,000 was contributed by one family towards the dormitory system.

The Alvarenza Prize.

Dr. Guy Hinsdale has been awarded by the College of Physicians, of Philadelphia, the Alvarenza Prize for his essay on "Syringomyelia."

The Text-Book of Ophthalmology, by Drs. William F. Norris and Charles A. Oliver, has been translated into the Chinese language. This is the first work on this subject that has enjoyed this distinction.

Necrology.

Dr. Joseph Daffron Schoales died in Philadelphia on October 24, 1895. Dr. Schoales was born in Ireland, in 1837, and when about five years old came to this country with his parents. After graduating from the Boys' High School in this city, he entered the University of Pennsylvania, receiving his degree in medicine in 1857. At the beginning of the Civil War Dr. Schoales entered the Union army. He became surgeon-in-chief at Harper's Ferry under Colonel McReynolds, and also held the same rank at Martinsburg under the same brigade-commander, and under General Sigel when the latter made his raid through the Shenandoah Valley. He participated in the battles of Bull Run, South Mountain, Antietam, and Winchester. In the fight at Winchester he was captured by the Confederates and

held as a prisoner of war for about a month, when he escaped and made his way over the mountains of West Virginia, rejoining his regiment at Martinsburg. At the close of the war, when he was mustered out with the rank of major, he returned to Philadelphia, where he soon built up an extensive practice.

Dr. James E. Garretson died in Lansdowne, Delaware County, on October 28, 1895. He was born in Wilmington, Del., in October, 1828, and received the degree in dentistry from the Philadelphia Dental College in 1857, and the degree in medicine from the University of Pennsylvania in 1859. Dr. Garretson was professor of Anatomy and Surgery in the Philadelphia Dental College, a member of the American Dental Association, the County Medical Society, and the Pennsylvania Dental Society. He was widely known as a writer and lecturer on oral surgery and diseases of the mouth.

Dr. Joseph C. Gilbert, of Chestnut Hill, Philadelphia, died on October 26, 1895. He was born in Chestnut Hill in 1832, and, after receiving his general education in the public schools, he entered the old Pennsylvania Medical College, from which he graduated in 1853. He immediately began the practice of his profession in the house in which he lived to the day of his death. During the Civil War he enlisted in the Twenty-fourth Regiment, Pennsylvania Volunteers, as assistant surgeon, and served three months. When he returned from the army he took up his work where he had laid it down, and soon became a prominent figure in medical and political circles. His death was the result of apoplexy.

The official statistics of the attendance at the University, recently given out by the provost, show an increase of seventy-four over that of last year. The tabulated statement of the attendance, with a comparison of last year's attendance, is as follows:

	1895-6.	1894-5.
College	696	689
Teachers' course	148	65
Total undergraduates	844	754
Department of Philosophy	164	161
Department of Law	257	279
Department of Medicine	819	815
Department of Dentistry	306	278
Department of Veterinary Medicine	62	78
Department of Hygiene	56	41
Department of Auxiliary Medicine	49	43
	2548	2449
Repeated	76	51
Total attendance in all departments	2472	2398

EDITORIAL.

THE NEED OF A MORE CORRECT NOMENCLATURE, WITH ESPECIAL REFERENCE TO THE TERM "PUERPERAL FEVER."

That there are many instances in medical literature in which the nomenclature should be changed scarcely admits of argument. On the other hand, it is a serious matter to drop from the vocabulary of a science terms that have existed for a generation or more, and substitute others that must tend to confuse many readers for a long time. When, however, the subject presses for solution, it must be squarely met and settled according to the best knowledge that we possess. The argument of those who contend that, because a certain term has been introduced and accepted, it should be retained, or, in other words, that which was good enough for a previous generation must certainly answer the present needs, does not call for serious consideration.

As our knowledge increases, new expressions must be introduced to describe the advances that are made. The terms "dropsy," "fever," etc., as indicating distinct diseases have been consigned forever to oblivion; they are retained to designate symptoms only; others must follow as soon as they are shown to be false in conception, misleading in practice, and obstructive to advancement. Such an one, it seems to us, is "puerperal fever," which is still retained by most of the "modern" text-books. It is not our intention to criticise the earlier writers on this subject for retaining the name, but now that we are able to distinguish between the various conditions heretofore included under this title there is no longer any excuse for a term so misleading. The objections to "puerperal fever," as a scientific term, are many and great. Puerperal fever is usually defined as any fever occurring during the puerperium. It will be seen from this statement that any condition that is associated with a rise of the bodily temperature may be puerperal fever, if it attacks the patient during the puerperal period, although having no other relation to the puerperal state. What a difficult matter it is to approach the question of treatment intelligently with such an idea of the causation of the disease. The fever may have been caused by pleurisy, pneumonia, any of the exanthemata, malaria, rheumatism, or some other acute affection in-

stead of by septic infection which is usually supposed to be at the bottom of puerperal fever. The writer has knowledge of a case in which a high fever developed after childbirth, and the obstetrician in charge, supposing the fever to be septic, curetted and irrigated the uterus without benefiting the patient's condition. It was discovered later that the woman had an ordinary croupous pneumonia. Similarly a woman may be curetted unnecessarily who is suffering from malaria, rheumatism, or other febrile disease. It is not our purpose to undervalue the immense importance of the knowledge that infection of the parturient tract was the cause of the high maternal mortality that existed prior to the past decade or two, which knowledge has led to the adoption of the principles of surgical cleanliness in obstetric practice and the saving of thousands of lives. But why call the condition resulting from infection puerperal "fever," when the same term would apply to any one of the conditions above mentioned equally well? On the other hand, a woman may become contaminated with the most virulent infection and die in consequence, and yet have no fever whatever. In such cases, the malignity of the infection so overwhelms the system that the vital processes are depressed to such an extent that the temperature falls below the normal, thus obscuring the fever that would otherwise be present. This condition would not be called puerperal fever, therefore, although etiologically it represents the highest grade of the disease usually so designated.

With this understanding, when the physician meets with a marked rise in the temperature of a patient after confinement, he would naturally inquire whether the fever could be septic in its nature, and due to infection of the parturient tract at some point, or whether it probably depended upon some other cause. This would lead to the systematic examination of the patient, and usually to the detection of the real nature of the trouble,—the most important step in the treatment of any abnormal condition. Of course, the term puerperal infection should not be applied to those very rare cases in which the sepsis depends upon a condition totally distinct from the child-birth, as from a felon or an abscess elsewhere, existing as a complication.

We are glad to observe that the latest text-book on obstetrics mentions the term puerperal fever only to condemn it. Under the heading "puerperal infection" are considered those conditions usually designated by the former. The term puerperal infection or puerperal sepsis at once conveys to the physician the key-note in the treatment,—namely, to prevent further absorption by proper disinfection of the parturient tract, and to combat the poison which has already entered the system.

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.,

ASSISTED BY

M. HOWARD FUSSELL, M.D. AND A. O. J. KELLY, M.D.

Double Phlegmasia Alba Dolens in a Young Virgin.

Herman and Penberthy (*Lancet*, October 5, 1895) report the case of a young woman, single, aged 20 years, who was admitted to the hospital complaining of pain and swelling of the left thigh, leg, and foot. She has always menstruated regularly, the last time three weeks previous to admission. Two weeks previous to admission she complained of pain in her back, which subsided, to be followed by swelling of the left leg, which attained its maximum size within twenty-four hours. The limb was hot and tender, but no thrombosed vein could be detected. The patient was a well-nourished, healthy-looking girl, slightly anemic; heart and lungs sound. Red blood-corpuscles, 50 per cent., white blood-corpuscles, normal, hemoglobin, 46 per cent. Under treatment the left limb went on uninterruptedly to recovery. At the end of two weeks, the right leg began to swell, and the patient to have fever 100° to 101° F. Vaginal examination revealed uterus movable, but not enlarged, no parametric swelling, nothing abnormal; no doubt of patient's virginity. Discharged from hospital at the end of two months. Recurrence at the end of a month. In spite of all treatment the legs remained much thicker than they were before her illness, and the patient could not stand nor walk much without their aching and becoming edematous. The case is exceptional and interesting because of the absence of the puerperal state, or of any cachexia associated with advanced cancerous or tuberculous disease. The patient was healthy except for a slight degree of anemia, and there had been no opportunity for septic or any other wound infection.

Spasmus Nutans or Nodding Spasm.

Dickson (*Lancet*, October 5, 1895) details the history of one case and refers to twenty-six others from the literature. The patient was aged 1 year; no previous history was obtainable. On examination the child was found to be pale but well nourished; only slight appearance of rickets. There were two upper and two lower incisor teeth. The head was noticed to be held constantly inclined to the right side when the child was sitting up. In addition, it shook from side to side in a way such as expresses dissent. The greatest excursion of the lateral movements was to the left, and there was a slight downward inclination also to the left. The movements were not constant, but were induced or increased by excitement of any kind, or by engaging the child's attention. Restraint of the movements caused

marked discomfort. They entirely ceased during sleep and when the child was laid on her back. A day or two after admission to the hospital, horizontal nystagmus of the left eye was noticed. It also was only occasional, and was induced or increased by attempts at fixation, and markedly so by restraining the head movements. There was no impairment of vision or of ocular movement, and the fundus oculi was healthy. The right pupil, however, was somewhat larger than the left. When looking at objects, the child threw back her head, and still keeping it inclined to one side, of necessity squinted at the object looked at instead of directing her gaze straight towards it. Later nystagmus of the left eye developed. Subsequently – with the eruption of teeth—the symptoms improved, and four months after first observation the child was apparently well. There was no treatment adopted except the administration of cod-liver oil, and attention to diet. Etiologically, rickets, falls; reflex causes, as eczema capitis, but especially dentition, are of importance. Prognosis is always good, recovery ensuing before the child becomes 2 years of age.

Typhoid Bacilli in Urine.

Semple (*Lancet*, July 27, 1895) has examined the urine of seven patients with typhoid fever, with the purpose of demonstrating the presence or absence of typhoid bacilli. He made cultures of the urine, and in six of the seven cases easily demonstrated the presence of typhoid bacilli. He argues from this, and the additional claim that typhoid bacilli are frequently absent from the stools of typhoid patients, that disinfection of the urine is much more important than disinfection of the stools.

Functional Heart-Murmurs.

Drummond (*Lancet*, July 27, 1895) calls attention to the fact that functional heart-murmurs are frequently mistaken for organic murmurs, and gives a table which shows well how they may resemble each other. The functional murmur may be either rough or soft. Its position may be either in the pulmonary region or to the right of the apex, and loudest in the left fourth interspace close to sternum. It is much affected by respiration, being lowest at full expiration. It is usually much affected by position, and is loudest either on lying down or standing. Some of the murmurs are loudest after rest, others after exercise; they all are markedly affected by rest.

Antiphthisin.

Denison (*Medical Record*, July 20, 1895). This substance is made from a concentrated culture fluid of the tubercle bacilli from which the toxic principles of tuberculin are supposed to be eliminated. It is claimed to be the soz-albumen, the probable germicidal substance in tuberculin, and its special value depends upon the fact that a larger dose is allowable without injurious effects to be expected from large doses of tuberculin.

The author has used the substance in a number of cases, but reports but two. In one of these the patient became practically well, and the tubercle bacilli disappeared from the sputum. There were no reactions.

In the second case there was an unusual reaction, but the patient is in excellent condition. He believes that the substance is not wholly without reaction effects. It is given both by rectum and hypodermically.

The antiphthisin was used in some very advanced cases with helpful and encouraging results. He believes that under the new treatment a certain prolongation of life is possible to be added to that which can be obtained from climate.

An Unpublished Physical Sign.

Walter Broadbent (*Lancet*, July 27, 1895) publishes, by permission, four cases in which there is visible retraction synchronous with the cardiac systole of the left back in the region of the eleventh and twelfth ribs, and in three of these is also a systolic retraction of less degree of the right back in the same region. In all of the cases there is a definite history of pericarditis, and in three of them there are other conditions strongly suggesting an adherent pericardium. The only means of causing this retraction seems to be the diaphragm, which, if pulled upon, would have more effect on the floating eleventh and twelfth ribs than on the other ones. This sign has long been pointed out by Sir William Broadbent in the wards of St. Mary's Hospital.

Presystolic Apex Murmur without Mitral Stenosis.

Phear (*Lancet*, September 21, 1895) gives a brief *résumé* of all previously recorded cases of presystolic apex murmur without mitral stenosis. In all there are forty-six, in seventeen of which the aortic valves were incompetent, in twenty the pericardium adherent. In twelve cases there was present either a diastolic or a presystolic thrill; this cannot, therefore, be so certain a sign of mitral stenosis as has been heretofore supposed. The condition of the chordæ tendineæ is mentioned in seven cases only; in three they are recorded as healthy; in two thickened, but not short; and in two they were found to be shortened. To these he adds two further cases, personal observations of his own. In both cases the aortic valves were competent; in one the pericardium was adherent, and in the other this structure was healthy.

Case I.—A girl, aged 10 years, over whose heart was heard a systolic murmur to which there was later added another murmur, rough in quality and low in pitch, of irregular rhythm, varying from early diastolic to mid-diastolic, or presystolic. Death due to uremia. The necropsy revealed the heart, especially the left ventricle, hypertrophied; the chordæ tendineæ attached to the mitral valves, both shortened and thickened. There was slight thickening of the aortic and mitral valves which were otherwise normal, as were also the tricuspid and pulmonary valves and pericardium.

Case II.—Male, aged 18 years at death, had been under observation five years. Early the subject of pericarditis, when, in addition to the to-and-fro friction sound, there was present a systolic murmur at the apex, he later developed, in addition, a presystolic murmur. This was later temporarily absent, although there was present a presystolic thrill. It again appeared and became irregular as did also the thrill, being presystolic, early diastolic, or absent. The necropsy revealed extensive and firm adhesions of the pericardium both to the heart and chest wall. Both sides of the heart were dilated, the left to a greater extent than the right; the left ventricle was hypertrophied. The mitral valves and the chordæ tendineæ were thickened and the curtains of the valve slightly adherent, though the orifice readily admitted three fingers. The aortic valves were competent. He discusses the various theories regarding the production of the presystolic apex murmur without mitral stenosis, and suggests that either of two conditions,—shortening of the cordæ tendineæ or dilatation of the left ventricle; and in either case the necessary addition of a

sufficiently forcible auricular contraction may produce this murmur. With shortened and thickened chordæ tendineæ, the mitral valves are held permanently in the position which, in the normal heart, they are made to occupy rhythmically by the contraction of the musculi papillares; this practically amounts to a narrowing of the aperture through which the blood has to pass, and, given a fair auricular contraction, will be attended during life by a presystolic murmur, although post mortem it will be found possible to introduce as many fingers through the mitral orifice as in the normal heart. The first case cited is an example of presystolic murmur without mitral stenosis proper, but with contracted chordæ tendineæ. Apart from the morbid change in the latter, a similar condition of valvular tension may result from increase of the distance between the point of their origin and the line of insertion of the mitral valves. In the event of dilatation of the ventricular cavity, the distance between any two points on the walls of the ventricle is increased. As the cavity gradually expands, the two sets of musculi papillares from which the cordæ tendineæ spring are displaced away from the ring to which the mitral valve is attached, and at the same time become separated from each other. The downward displacement tends to put the valve on the stretch lengthways, and to draw the flaps together; the effect of the lateral movement is to produce tension along the line of the free edges of the valves. In this way the cure which is formed by the margin of each flap is straightened and the aperture included by the flaps is elongated and narrowed. He also suggests that many of the cases recorded of presystolic murmur without mitral stenosis, but with aortic regurgitation, may have been due to one or both of these conditions mentioned.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

G. G. DAVIS, M.D., M.R.C.S., AND ELLWOOD R. KIRBY, M.D.

On Flies and Fleas as Agents in the Production of Disease.

Archives of Surgery, October, 1895, says editorially that flies have, by many observers, been accused as the means of contagion in the ophthalmia which prevails in the armies, and especially in hot countries. In several instances of ophthalmia in schools, in spite of every precaution, as to towels, etc., it has been observed that boys sleeping in adjacent beds have been attacked either simultaneously or in rapid succession. Several interesting experiments have been made by Burgess. Flies had been placed in momentary contact with the bacillus prodigiosus, and then been allowed to escape and roam about for some time in a large room. On being recaptured and made to walk over slices of sterilized potato, vigorous growth of the bacilli were found to develop wherever their feet had touched.

An interesting case is reported of a physician who had become the subject of syphilis; he was covered with an eruption, and there could be no question as to the diagnosis of the disease. On careful examination of the genitals no trace of the primary lesion could be found. A dusky spot, however, was found on one leg which looked like the remains of a boil. The dates fitted exactly with the supposi-

tion that this had been the primary sore. The history of the sore was that it had followed a flea-bite which he had subsequently scratched. As the doctor had retired from practice and never had anything to do with syphilitic patients, it was not in the least probable that he had inoculated the bite by scratching.

The Treatment of Inoperable Malignant Tumors by Injections of Erysipelas Toxines.

Campanini (*Il Policlinico*, 1895) has tried injections of the erysipelas toxines in two cases of sarcoma, one of the nose and naso-pharyngeal cavity and one of the breast. In the former case he made an injection of half a cubic centimetre into the substance of the tumor. Half an hour afterwards the patient had a rigor; the temperature rose to a very high point, only returning to normal about ten days after the injection. During the pyrexial period the patient was in a state of extreme drowsiness, answering questions with difficulty, and complaining of giddiness, headache, and tinnitus. There was suppression of urine, with intense thirst. The next day a second injection was made, the dose this time being three-tenths of a cubic centimetre; it was followed by the same symptoms, but even more alarming. In view of these results and of the fact that no alteration of size was perceptible in the tumor, the author sought to attenuate the toxines by exposing them to a very high temperature and diluting them with distilled water (one cubic centimetre of pure toxines in sixty cubic centimetres of distilled water). The injection of ten cubic centimetres of this fluid into two rabbits was not followed by any reaction. Thirty injections of this fluid were given to the patient in the course of a month, and although the proportion of toxine was progressively increased, the growth of the tumor was not appreciably checked. A histological examination of the tumor showed that there was no trace of a retrogressive process. The results in the other case were equally negative. The author therefore concludes that the treatment is useless, while the serious symptoms which followed the first injection indicate a grave degree of intoxication.

Sudden Death on Opening a Retropharyngeal Abscess.

Pialot (*Journal de Clinic et de Thérapeutique Infant*, 1893) reports a case in which a child, aged 14 months, suffering from a large retropharyngeal abscess, died suddenly on an incision being made into it. Rhythmical traction of the tongue, injections of ether, and the application of hot compresses to the chest failed to revive the little patient. Every precaution had been taken to prevent the escape of pus into the air-passages, and on post-mortem examination no trace of pus was found either in the trachea or in the bronchi. There was no edema of the glottis. Death was believed to be due to syncope of reflex origin, although the exact mechanism was not apparent. The pneumogastric nerves were pushed back and stretched by the abscess. The case is recorded so that operators may be on their guard against such an accident, which the author sees no way of preventing.

Urinary Infection.

Bazy (*Archive Général de Médecine*, 1895) relates an instructive case, a man, aged 70 years, complaining of symptoms apparently of vesical origin, was sounded with negative results. In the evening of the same day a few drops of blood were passed *per urethram*. Twenty-four hours later he had a severe rigor, which was repeated on the following day. When first seen by the author nothing abnormal

could be made out locally. The urine was scanty and contained a small quantity of albumin. The patient had had glycosuria for some time past. He was now thought to be suffering from some infection starting from the urethra. The next day there was a little edema of the scrotum and legs. A swelling then appeared in the perineum consisting of a periurethral phlegmon. Two sloughs appeared, one on the scrotum and the other on the penis. When these were removed, pus could be made to well up by pressure along the urethra. Incisions were made, but the patient eventually died.

In this case there were two periods in the illness, the general symptoms preceding the local. The author emphasizes the fact that glycosuria sometimes causes vague urinary symptoms, and draws attention to the dangers of catheterization in these cases. A point of entry may thus be opened to some infection. In infections starting from the urinary apparatus the lesions are mostly renal. Fever is the only symptom in these infections, and even this may be absent. The state of the pulse and respiration is more important. These urinary infections only differ from infections starting elsewhere, in the intermittent fever observed in individuals with septic urine subjected to catheterization. This fever which is observed after micturition, can be explained only by the entry of some pyretogenetic substance into the circulation. The evolution of these infections depends on,—

(1) Their place of origin, whether from the urethra, bladder, or kidney.

(2) The agents causing them.

(3) The nature of the soil, as, for example, diseased kidneys.

As regards treatment, it is necessary to guard against the stagnation of organisms, hence their evacuation by washing out the bladder, incision, and drainage. The elimination of poisons absorbed must be encouraged through the emunctories.

Treatment of Hemorrhoids.

Haward (*Lancet*, June 15, 1895), after giving the histories of some cases of syphilitic ulceration of the rectum, makes the following observations on the operative treatment of hemorrhoids. He prefers on the whole the clamp and cautery in preference to the ligature as it is less painful. Practically he often combines the two, using the clamp for the larger masses and tying any vessels or small surfaces which bleed after its removal. In patients weakened by loss of blood it is better to use the ligature only. The results of both are equally good, but pain is less and recovery more rapid after the cautery. Out of 140 cases, eighty-five were done by clamp and fifty five by ligature. There were three deaths, one from anemia, one from erysipelas, in a woman aged 81 years, after ligature, and one in an extremely anemic man who, a few days after the operation, developed bronchopneumonia. He had been operated on by the combined clamp and cautery and ligature.

A Case Showing the Value of Left Supraclavicular Adenopathy as a Revealing Symptom of Intra-Abdominal Cancer.

Roger Williams (*Lancet*, August 3, 1895) gives the history of a case of malignant endothelioma of the omentum with enlargement of the left supraclavicular glands. The author remarks that Troisier in 1881 first pointed out the sign. The first indication of the affection generally is the enlargement and induration of a single lymph-gland, situated behind the posterior border of the lower part of the left sterno-cleido-mastoid muscle. Subsequently adjacent glands become similarly affected; and in the event of life being prolonged they ultimately manifest

all the symptoms of malignant disease. This occurs without any of the intervening structures, prevertebral glands, lungs, etc., being invaded. All the different varieties of intra-abdominal malignant disease may cause this affection; but it has hitherto been observed with especial frequency in association with cancer of the uterus. It seems probable that this curious pathological condition is due to reflux of lymph, charged with cancer cells, from the thoracic duct into which the cancer cells find their way from infected lumbar glands. Attention is called to the great importance of this manifestation in the diagnosis of obscure intra-abdominal disease and as a contra-indication to operation. The glandular enlargement generally first makes its appearance at a late stage of the abdominal disease; it has, however, been known to have appeared nearly two years before death. Several instances of its occurrence have lately been reported secondary to malignant disease of the testicle. Vidal has met with a case secondary to cancer of the stomach. Spinelli has tabulated thirty-four examples of this condition, and he points out that the glandular enlargement may be accompanied by painful sensations in the region of the neck, shoulder, and arm. Care must be taken not to confuse this adenopathy with the "pseudo-lipome sus-claviculaire" of Verneuil. The latter affection is simply an overgrowth of the fibro-fatty tissue of the supraclavicular fossa, both sides being affected; and it is usually met with in well-nourished middle-aged women otherwise in good health.

Atrophy of the Testes and Prostate after Section of the Vas.

Isnvrdi (*Riforma Medical*, 1895) showed before the Accademia di Medicina of Turin an old man of 72 years, whose vas he had divided six weeks before for enlarged prostate. For the last year the man had suffered from the advanced symptoms of enlarged prostate which had been rebellious to all forms of treatment. The prostate was much enlarged, and the patient had to put himself in odd positions before he could micturate.

Twelve days after the operation the symptoms began to diminish and disappeared within a month. He can now hold his water for seven hours during the night, and pass it voluntarily and without pain. The urine, which was before purulent and blood-stained, is now clear and normal. There is induration over the incision extending down to the epididymis, the testicles are diminished in size, and the prostate is impalpable.

The Hysterical Breast.

Tourette (*Journal de Médecine*, August, 1895) describes a condition of the breast under the name of hysterical breast, which he considers of much importance, not only as it is a well-defined manifestation of hysteria, but also from the fact that it has given rise to errors in diagnosis and needless removal of the organ. It consists of a temporary enlargement of the breast with considerable hyperesthesia of the skin covering the organ. This hyperesthesia, liable to vary, becomes much more marked during the menstrual flow; there is then, also, more swelling, and considerable pain is complained of. On palpation at such time it is possible to perceive one or two tumor-like masses in the substance of the breast, about the size of a hen's egg, but which are not painful, the hyperesthesia being cutaneous. The affection is often of long duration, especially in those cases where there is faulty therapeusis, as often happens. It seems to depend on a hysterogenous band of hyperesthesia at the level of the breast, which induces an edema of the connective tissue of the gland. In this way are produced the local swellings.

THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D., AND ARTHUR A. STEVENS, M.D.

Borax in Epilepsy.

Féré (*Revue de Médecine*, September, 1895) publishes the results of the treatment of 122 cases of epilepsy by borax. The drug was given in large doses—two grammes, gradually increased to twenty grammes a day, and in some cases for many months. In 71.31 per cent. of the cases the treatment was without effect. In 19.67 per cent. the improvement was less than that derived from the use of bromides. In 9.01 per cent. of the cases the improvement was marked, although the permanency of the good effect could not be stated on account of the short duration of the observations. The great disadvantage of borax is the frequency with which its continued use in large dose is followed by toxic symptoms. The earliest untoward symptoms are usually associated with the digestive tract, and consist in nausea, vomiting, anorexia, and heaviness and burning in the stomach. In some cases these symptoms may be diminished or removed by administering intestinal antiseptics, or by giving the borax dissolved in glycerin instead of water. Extreme dryness of the skin with suppression of the fatty secretion, as well as dryness of the mucous membranes, may also be produced by the large doses of borax required in epilepsy. The hair also becomes dry, and sometimes falls out. Various skin eruptions may be induced by borax, notably psoriasis and seborrheic eczema. Other less common affections of the skin are the appearance of red plaques, which may be confluent and very extensive, may resemble the rash of measles or scarlet fever, and may be followed by desquamation.

In some instances the borax produces a cachectic state, characterized by wasting, a waxy tint to the skin, discoloration of the mucous membranes, puffiness of the face, and some general edema. In a certain proportion of the cases of edema there is albuminuria, and in such cases uremia may develop with great rapidity.

Borax appears in the urine in health half an hour after ingestion, and may continue to be excreted by the kidneys for weeks after the suspension of treatment. On the whole, Féré concludes that borax is more efficacious than bromides in a small proportion of cases of epilepsy, and that, therefore, it should be tried when the bromides fail. It must be regarded, however, as a dangerous remedy, owing to its power of producing or aggravating lesions of the kidneys even when given in small doses.

The Treatment of Itching in Urticaria.

Berliner, of Aix la Chapelle (*Gaz. Méd. de Liége*, August 22), recommends the following method for the relief of itching in urticaria. The affected surfaces are first wetted with cold water, and then rubbed for ten to fifteen seconds with a minute quantity of common table salt with the pulp of the wetted forefinger. After the friction, a small quantity of oxide of zinc ointment or rice or starch-powder should be applied. The application soon causes a pleasant feeling of freshness, the itching diminishes or ceases, and the papules disappear. When extensive surfaces have to be dealt with, the saline frictions should be made gradually over limited areas, lest too intense a mechanical irritation be produced. At the same time tepid bathing and appropriate dietetic and other treatment should be employed.

Metabolism in Thyroid Treatment.

Denning (*Münchener medicinische Wochenschrift*, April 23, 1895) has investigated the effects of the thyroid treatment on metabolism, the researches were carried out on three healthy but obese individuals. In the first case there was a slight increase in the nitrogenous excretion in the urine, but only to the extent of 5 per cent. The amount of urine remained the same. There was loss of weight to the extent of two and a half kilogrammes. In the second case there was an increase in the amount of urea, but the amount of urine showed no increase, although a larger amount of fluid had to be allowed during the experiment owing to thirst. In the third case there was only a slight increase in the urea and nitrogenous products. The amount of urine was increased. There was a loss of weight of some five kilogrammes; but an increase took place later, even when the regulation diet was adhered to. The author thinks that differences exist in different individuals in respect to the effect of thyroid treatment upon metabolism. Albuminuria and glycosuria are regarded as unfortunate effects; the former is rare.

The Cholera Antitoxin.

Ransom (*Deutsche medicinische Wochenschrift*, No. 29, 1895) reports his investigations upon the subject. He shows that the dissolved cholera poison, free from micro-organisms, causes a fall of temperature in the same way as virulent cholera culture. He separates this culture from a bouillon culture. Similar results are obtained, whether it is injected into the abdominal cavity or subcutaneously; that the action is more rapid in the former case. The minimum fatal dose took effect more quickly with the poison than with living cholera vibrios. This fluid, freed from bacilli, cannot be preserved long, and the author has been unable to maintain its virulence by artificial means. The poison is little altered by heat. The addition of chloroform, toluol, etc., does not impair its activity; when concentrated it becomes less virulent. A solid substance can be obtained from this fluid which acts in the same way as the fluid. The author finds 0.07 grain of this solid to be the minimum fatal dose of a guinea-pig weighing 250 grammes. In fatal cases a fall of temperature is noted. The solid substance administered to guinea pigs by the stomach is harmless. The author has immunized various animals against cholera, and has obtained an antitoxin from the blood. Guinea-pigs when injected with a mixture of the cholera poison and this antitoxin did not die. They could thus stand twice or thrice the minimum fatal dose. Control experiments were also made with the serum obtained from non-immunized animals. He found the curative serum efficient against the poisonous culture fluid as well as against the infection produced by living cholera vibrios. If the serum were injected forty-eight hours before the cholera bouillon it also had a life-saving effect.

Chloralose as a Hypnotic.

Marandon de Montyel (*Revue de Médecine*, May 10, 1895) condemns chloralose as a hypnotic for general use in alienation. He admits that it often exerts a certain, though variable, amount of hypnotic action, but the patient very rapidly becomes habituated to the drug, which then ceases to have any effect. The only cases in which he found chloralose to be really useful were cases of epilepsy complicated by insomnia, The drug appeared not only to produce sleep, but to cut short the duration of the period of excitability. The dose given was three and three-quarters to seven and a half grains nightly, until the crisis appeared to be over.

Urotropin.

Nicolaier (*Deutsche medicinische Wochenschrift*, No. 21, 1895) has conducted a series of experiments in order to determine the therapeutic value of urotropin or hexamethyl-enetetramine. He has found that the new drug has marked diuretic and urolytic properties. During its administration the urine becomes acid and ceases to throw down uric acid or urates. That the solvent action is not due to the diuresis is clearly shown in the few cases in which the drug, while failing to increase the urine, still exerted urolytic properties. Urotropin is absorbed and eliminated unchanged, and was detected in the urine by the author by means of bromine water with which it forms an orange yellow precipitate of urotropin dibromide. Daily doses of thirty grains could be given for a long time without producing any disturbance. The author has given eight and even ten grammes daily to some without untoward effects, but in others the continued use of six grammes daily excited burning in the urethra and bladder after micturition, and sometimes increased desire for urination. In these cases a further increase in the quantity of the drug caused hematuria, which, however, disappeared when the remedy was withdrawn.

Nicolaier has obtained good results in several cases of urinary calculus from the use of urotropin in daily doses of fifteen to twenty-four grains, dissolved in water, and taken in the morning. In two cases of cystitis with ammoniacal urine excellent results were speedily obtained by using urotropin in daily doses of from seven to twenty-four grains. In some instances ammoniacal fermentation was at once arrested. In simple cystitis the drug has not given uniform results, and therefore the author withholds his opinion regarding its value in this affection.

OBSTETRICS.

UNDER THE CHARGE OF

BARTON COOKE HIRST, M.D.,

ASSISTED BY

RICHARD C. NORRIS, M.D., AND FRANK W. TALLEY, M.D.

The Maternal and Fetal Blood at Birth.

Drs. Elder and Hutchison (*Edinburgh Medical Journal*, August, 1895) reported before the Edinburgh Obstetrical Society the result of a series of observations on the blood of mothers and healthy children immediately after birth. They obtained the blood from the umbilical cord when it was cut and from the lobe of the mother's ear during the latter part of the first or during the second stage of labor. They arrived at the following conclusions:

(1) The blood of the newly-born child is relatively richer in red corpuscles than that of the adult by 350,000 to 500,000 per cubic millimetre.

(2) For a short time after birth—up to about two days—the red corpuscles seem to increase in number. This is probably due to the fact that the total volume of blood is less, from the fluid lost from the body during this time being in excess of that absorbed. Thus concentration of the blood is produced. After the second day or so the red corpuscles gradually decrease.

(3) The number of red corpuscles varies much more than in adults, probably because of greater variations in the total volume of the blood.

(4) At birth there is always present a considerable number of nucleated red corpuscles. They vary, however, in number in different cases.

(5) About the sixth month of intra-uterine life the number of nucleated red cells is very much greater than at birth. They probably rapidly decrease in number during the latter months of pregnancy, and altogether disappear from the blood in a few days after birth.

(6) The blood of the newly-born child is relatively much richer in hemoglobin than the blood of the adult.

(7) The individual red corpuscles are richer in hemoglobin than those of the adult.

(8) The blood of the mother at parturition is anemic.

(9) In any individual case the blood of the mother is considerably poorer in red corpuscles per cubic millimetre than that of her child, and it is still more deficient in hemoglobin.

(10) Both the blood of the mother and that of the child contain a larger number of white corpuscles than normal adult blood. The blood of the mother may be quite as rich in white corpuscles as that of the child.

(11) The blood of the child contains a distinctly larger proportion of lymphocytes and a distinctly larger proportion of neutrophile leucocytes than the blood of the adult; the number of eosinophile cells seems to be slightly deficient.

(12) At the sixth month this excess of lymphocytes is probably even more marked than at birth; they probably decrease during the later months of pregnancy,

(13) After parturition the number of white corpuscles in the blood of the mother (at least of those who suckle their children) decreases markedly in a few days.

The great difference between the constitution of the blood of the mother and that of her child would altogether dispose of the idea of any mixing of their bloods, even if histological investigation had not already proved that this did not occur. There can be no doubt that the excess of hemoglobin and consequently preponderance in oxygen-carrying power on the part of the blood of the child must be one of the most important means by which its metabolism is carried on as it is, and yet, although this excess of hemoglobin has been long known, its importance is not usually drawn attention to in this connection. When it is remembered that the child's blood can only be oxidized indirectly through the blood of the mother and is consequently in as possibly comparative state of cyanosis, it can be seen that a great quantity of red corpuscles is valuable for the child to compensate for this. This great excess in red corpuscles and hemoglobin is also found in children with congenital malformations of the heart and cyanosis.

The excess of hemoglobin and of red corpuscles in the blood of the child *in utero* also shows that the life of the child is, to a certain extent, parasitic,—*i.e.*, that it has a certain amount of independence.

In cases of anemia, the blood of the child does not seem necessarily to suffer *pari passu* with that of the mother, but, on the contrary, the child seems to get more than its share.

Vesicular Mole followed by Malignant Changes.

Marchand (*Monatschrift für Geburtshülfe und Gynäkologie*, June, 1895) has collected fifteen cases of deciduoma malignum, and no less than twelve of malignant growths following the development of vesicular mole. A case was reported in 1795, but the first case recognized in the last half century was described by Guttenplan

in 1883, and ten of the remaining thirteen cases have been reported since the beginning of 1890. Eleven died in less than two years after the vesicular mole was removed; in one there was no after-history beyond the sixth or seventh week, when the uterus contained deposits. In the remaining case the uterus was removed through the vagina. Three months later the patient was doing well. Marchand bases his reasons on histological research why vesicular molar pregnancy should particularly predispose patients to malignant disease of this type. He is not at all certain as to the precise homology of malignant deciduoma as a tumor. It differs in many ways from cancer, although it is of epithelial origin. It may be accepted as proved that this newly-discovered disease is well established and seems to be growing more frequent.

Statistics of Lactation.

Wiedow (*Centralblatt für Gynäkologie*, No. 29, 1895) has reported the following statistics collected at the Freiburg Maternity. Out of 525 in childbed, only one-half could suckle thoroughly in the first two weeks. Ninety-nine of these secreted no milk. Imperfect nipples were noted in forty-nine cases; fissured nipples in forty-six; and insufficient secretion of milk in forty-four. Only thirty-three suckled freely without any of the above-named unfavorable complications. Wiedow groups the breasts in three classes, according to the percentage of his series,—

Good breasts, 56 per cent.; medium, 21 per cent.; bad, 11 per cent. The development of the nipple bore a direct relation to the value of the breast as a secretory organ.

Puerperal Tetanus.

Walko, of Von Jaksch's Clinic (*Deutsche medicinische Wochenschrift*, September 5, 1895), describes a case of puerperal tetanus treated by Tizzoni's antitoxin. The condition occurred about the tenth day after labor with a sudden trismus. Upon admission to the clinic there was marked spasm of the jaws and the head was drawn back. General spasms occurred from time to time. Vaginal examination revealed nothing of importance. The body of the uterus was dextroverted, the cervix lacerated, and bleeding readily on being touched. There was very little secretion from the uterus. She was given the first dose of antitoxin on the day of admission. On the next day there was some improvement, but twenty-four hours later the patient relapsed, and died on the next day. Eighteen injections of a 0.2 gramme of the antitoxin had been given at intervals of about five hours. A considerable leucocytosis was observed. The bacteriological examination of the lochial secretion, blood, colostrum, etc., was negative. There was, however, no question of the nature of the disease. Two other cases of puerperal tetanus occurred at about the same time. Extirpation of the uterus was performed and the tetanus bacillus was found in the lochial secretion. Both cases followed a rapidly progressive and fatal course.

Walko refers to the antitoxin treatment of tetanus and to the divided opinions as to its value. Improvement has been mostly noted at varying intervals after the injections. Beneficial effects have been very rare in severe forms of tetanus. Walko states that in the majority of cases tetanus is not a fatal disease. According to Albertoni, 136 out of 176 recovered—*i.e.*, 78.9 per cent. It is not decided whether in severe cases even larger doses should be employed. The treatment should be begun early. A difference in the properties of the antitoxin obtained from different sources is possible.

Prophylactic Treatment of Ophthalmia Neonatorum by a Nitrate-of-Silver Solution of 1:150 Strength.

Budin (*Archives de Tocologie et de Gynécologie*, May, 1895) again recommends this treatment after three years' experience. He published an article in 1892 describing the use of nitrate of silver, 1:50, which was advised by Bischoff and Credé as a prophylactic, a drop of which was allowed to fall upon the opened eyelids of the new-born infant. While this is efficacious, it causes a swelling of the eyelids, followed by so abundant suppuration that it has been mistaken by some for a purulent conjunctivitis, which they wished to relieve by new cauterizations.

Budin has continued the use of silver nitrate in the strength of 1:150, which, while causing none of the inconveniences of the 1:50 solution, has given most satisfactory results. Of 2004 children treated with this solution there were only two cases of purulent ophthalmia and seven of secondary conjunctivitis. These results may be explained in part by the precautions taken. These include a bath and vaginal injection of mercuric chloride 1:4000 before confinement, if this is not too far advanced, drying the infant's eyes and introducing several drops of the 1:150 silver-nitrate solution just after birth, and immediate isolation of the mother and child if the slightest complication occurs in either.

Walcher's Position in Labor.

Fothergill (*Edinburgh Medical Journal*, July, 1895) employed Walcher's position in six cases of labor. Five of these were described as promontory projecting, justo-minor, or a combination of these conditions. The pelvis was normal in the sixth case, but the head was very large. An average increase of 0.93 centimetre may be obtained in the diagonal conjugate by allowing the legs to hang down without touching the ground. The *rationale* of this increase is found in the fact that the pelvic girdle can rotate about an axis passing through the two sacro-iliac joints. When the symphysis moves downward in this rotation the conjugate is increased. The weight of the legs when hanging is transmitted to the innominate bones mainly by the **Y**-shaped ligaments, causing the rotation described, thus sparing work on the part of the uterus and musculature generally and avoiding pressure of the head on the symphysis. The perineum is saved from undue pressure by the forceps in Walcher's position during high forceps operations and the conjugate is increased. The strength of the operator is saved and pressure on the head and pubic symphysis is avoided. In cases not requiring forceps, but where there is difficulty at the brim, the position saves exertion of the uterus and abdominal muscles as well as pressure on the head and symphysis. In all cases where the perineum is in danger, in delivery, with or without forceps, this position, or, at least, extension of the legs at the hips, is of advantage in relaxing the integument and subjacent tissues.

Lactation and Syphilis.

Havas (*Centralblatt für Gynäkologie*, No. 32, 1895) has published in a Hungarian medical journal an important communication on the moral and medical aspect of this question. He concludes that a syphilitic infant should be suckled by its mother, or if she cannot secrete milk, by a syphilitic nurse, or if there be no such wet-nurse available, by artificial feeding. It is wrong and dangerous for a healthy nurse to suckle a child whose parents are syphilitic.

GYNECOLOGY.

UNDER THE CHARGE OF

CHARLES BINGHAM PENROSE, M.D.,

ASSISTED BY

H. D. BEYEA, M.D.

A More Radical Method of Performing Hysterectomy for Cancer of the Uterus.

Clark (*Johns Hopkins Hospital Bulletin*, Nos. 52 and 53, 1895) states that a review of the literature upon the operative treatment of carcinoma of the uterus is sufficiently convincing of the inadequacy of any method of treatment, but as the operative is the only one which offers any chance of cure or benefit at present, it should be employed in all cases where the disease has not passed beyond the palliative effect of hysterectomy. If the broad ligaments are densely infiltrated and the cervix deeply excavated, any form of radical operation is out of the question, as there is no possibility of even alleviating the symptoms. He believes if, on the other hand, the cervix is extensively ulcerated, and the broad ligaments only slightly involved, the prognosis is favorable, at least for the euthanasic effect of hysterectomy, and in a certain proportion of cases the disease can be removed completely, even by the ordinary methods of hysterectomy. From the clinical history and autopsy notes of three cases observed he is convinced that any measure which offers the slightest prospect of mitigating the agonizing pain and relieving symptoms caused by pressure of the growth upon the rectum and ureters should be advised; that the frightful suffering which these women experience, with the excessively disagreeable discharge, are justifiable indications for operation; that it is better to have a local recurrence and ultimate death from metastasis following removal of the uterus, with a decided amelioration of the distressing symptoms, than to have these symptoms increasing in their severity until death without operation. As the faults common to all methods of removing the uterus are (1) the broad ligaments are cut too close to the uterus, and (2) too small portions of the vagina are removed; again, since of twenty uteri examined pathologically at the Johns Hopkins Hospital, fifteen showed the carcinomatous process extending beyond the limits of operation pointing strongly to the necessity of a more radical method of operation.

Clark advises and has practised in two cases the following method:

(1) Insert bougies into the ureters under the local effect of cocaine.

(2) Make abdominal incision of sufficient length to insure free manual movement.

(3) Ligate upper portion of broad ligament with ovarian artery as near as possible to pelvic wall; divide vesico-uterine peritoneum around opposite side; push bladder off, and spread layers of ligament apart, exposing uterine artery.

(4) *Dissect uterine artery out for 2.5 centimetres from uterus beyond the vaginal branch and tie.*

(5) Dissect ureter free in base of broad ligament.

(6) Ligate remainder of broad ligament close to iliac vessels and cut it away from its pelvic attachment.

(7) Carry dissection well down below carcinomatous area, even though cervix alone seems to be involved.

(8) Proceed on opposite side in the same manner as on the first side.

(9) Perforate vagina with sharp-pointed scissors, making strong traction on uterus with small vulsellum forceps, so as to pull the vagina up and make its walls tense, then ligate in small segments (one centimetre), and cut each segment as it is tied.

(10) Insert iodoformized gauze from above into raw space left by hysterectomy; draw vesical and rectal peritoneum over this with a continuous fine silk suture.

(11) Irrigate pelvic cavity and close abdomen without drainage.

There are three essential steps in this operation which differ from those now employed:

(1) The introduction of the bougies allowing a more extensive extirpation of tissue adjacent to the uterus without danger to the ureters.

(2) The ligation of the upper portions of the broad ligaments and ovarian arteries, cutting them close to the pelvic walls, opening the two layers, and ligating before excising any tissue.

(3) The excision of a much larger portion of vagina than usual.

The uterine artery is ligated near the pelvic wall, as the ligature will be less apt to contain carcinomatous tissue, the danger of hemorrhage is eliminated, and the broad ligament can be cut away close to its attachment. In the two cases operated upon the broad ligaments were slightly involved, and in one the vagina and recto-vaginal space. In one case the cancerous tissue was completely removed, and in the other it was impossible to remove a small nodule in the recto-vaginal space. Two months after operation there were no signs of return in one case, and in the other a minute nodule, unquestionably carcinomatous, could be felt in the recto-vaginal space. The operation is described in detail with the clinical history of each case.

The Bacteriology of the Female Genital Tract.

Stroganoff (*Centralblatt für Gynäkologie*, No. 38, 1895), after a long series of bacteriological experimentation, comes to the following conclusions regarding the presence of micro-organisms in the uterine cervical canal:

(1) That the uterine cervical canal of pregnant and non-pregnant women is, as a rule, sterile.

(2) That the area surrounding the external cervical os is the point of separation of the sterile and non-sterile female genital tract.

(3) That the cervical mucous membrane destroys bacteria.

He has made a bacteriological examination of the uterine cervical secretion in thirty-one women,—eleven pregnant and twenty non-pregnant. In nine of the eleven pregnant women, 81 per cent., the cervical canal was found sterile. The two remaining cases contained micro-organisms, because of granular vaginitis in one, and because a vaginal examination had been made the day before in the other. Of the twenty non-pregnant women the cervical canal was sterile in sixteen, 80 per cent. The three remaining cases of this class he believes were infected through vaginal examination, made for three consecutive days with the bacteriological examination. Cultures made the first day remained sterile, one of those made the second day contained a single colony, and of those made the third day half contained micro-organisms. He believes that micro-organisms can be introduced mechanically, through coitus and diseases of the genital tract. He says that therefore in making these investigations patients having a diseased genital tract should not be included. He has shown by experimentation that the cervical mucous membrane (by infecting excised portions of mucous membrane with pathogenic micro-organisms) is a destroyer of micro-organisms, and also believes that the menstrual and lochial dis-

charge prevents infection of the uterus. He refers to the work of Walthard upon this subject, which has practically given the same results as are here recorded, but states that his present results were first published in 1893, prior to those of Walthard in the Russian literature, but received little notice or were incorrectly quoted.

Intra-Abdominal Shortening of the Round Ligaments for Retro-displacements of the Uterus.

Mann (*Med ical News*, March 23, 1895) claims that the performance of ventro-fixation of the uterus places the organ in an unphysiologic condition, and therefore he prefers shortening the natural supports of the uterus for the cure of displacements.

In operating, the round ligament is to be grasped by a couple of forceps in such a manner that it will be divided as nearly as possible in three equal portions. By lapping these parts the round ligament is doubled on itself twice, and three thicknesses of ligament are placed between the side of the pelvis and the front wall of the uterus. Either a silk or a silkworm-gut suture is passed through the loop of ligament nearest the uterus, from the pelvic wall side and over to the other loop of round ligament, embracing a considerable amount of the uterine tissue in its passage. The forceps holding this portion of the ligament is removed as the ligature is tied, and the other end of the ligament is next secured by a ligature passed from without inward and tied in a firm square knot. Care must be taken in passing these ligatures not to include the artery which runs just below the round ligaments. Mann claims excellent results from this operation, which he has performed thirty times, and cites the following advantages: It cannot primarily fail; the ligaments are readily found, and can be shortened to any required degree; the uterus is left in its normal position and supported by its natural ligaments; there are no loops or holes for intestines to enter, thus causing intestinal obstruction; should pregnancy occur, the uterus is left free to rise and move as may be required; by the use of a non-absorbable ligature the result is likely to be permanent.

Reduction of an Inverted Uterus of Three Months' Duration.

Anst-Lawrence (*British Medical Journal*, March 9, 1895) reports a case of post-partum inversion which occurred three months prior to the patient's admission to the Bristol General Hospital.

The woman was in great pain and had considerable uterine bleeding. The uterus was found to be completely inverted. Taxis under chloroform failed to reduce the organ. Rest in bed and hot vaginal douching were ordered for a few days, and then Aveling's repositor was applied. The largest cup was used with only slight elastic pressure. Eleven hours afterwards a slight indication of a ring was detected at the upper part of the swelling, but no appreciable lessening of the uterine tumor. The tension on the elastic rings was somewhat increased, and in one hour the fundus was on a level with the os uteri, so that at the end of twenty-four hours one-half of the uterus was reduced. The small end of the repositor was then employed, and the fundus was pushed well within the cervix. The patient seemed now, at the end of twenty-eight hours, exhausted, and the apparatus was accordingly removed, and to prevent any descent of the fundus the uterine canal was packed with iodoform gauze, and a dose of opium was administered. This maneuvre was followed by only slight descent, and upon replacing the repositor the following day the uterus was, at the end of thirty-four hours from the beginning of treatment, perfectly restored to normal position. The patient continued well at the time of this report, three months after operation.

PATHOLOGY.

UNDER THE CHARGE OF

JOHN GUITÉRAS, M.D.,

ASSISTED BY

JOSEPH McFARLAND, M.D.

Some Improvements in the Technique of the Diphtheria Culture-Test.

Ohlmacher (*Medical News*, May 4, 1895, p. 491) suggests that, inasmuch as a prompt bacteriologic diagnosis of diphtheria is of immense importance in cases in which the antitoxin treatment is to be early applied, the old plan of inoculating blood serum with a swab and then waiting twelve hours for visible colonies to appear be abandoned, and the surface of the culture medium examined *five* hours after being stood in the incubator. To do this a platinum wire loop is carefully rubbed over the surface, and the material secured, then mixed up with a drop of distilled water upon a cover-glass, dried, stained with methylene violet, and examined microscopically. By this means six or seven hours' time can be saved.

Ohlmacher also mentions the drawback which expensive apparatus in the form of an incubator is to many, who would otherwise make careful examinations of their cases, and has experimentally found that eighteen hours at the room temperature will answer as well as the five in the incubator.

Micro-Organisms in the Blood of Scarlatina.

Crajkowski (*Centralblatt für Bacteriologie und Parasitenkunde*, August 8, 1895, Band XVIII, Nos. 4 and 5, p. 116) secured blood from scarlatina patients by a needle-prick of the ear, and from it made cultures and cover-glass preparations. The culture media used were glycerin agar-agar, agar-agar with hematogen, blood-serum, gelatine, bouillon, serous transudate from the peritoneum and from the tunica vaginalis testis.

The cover-glass specimens were dried, fixed, and stained in Chencinski's mixture. These specimens showed micro-organisms in the form of diplococci. They were found in relatively small numbers,—one to two in a field of vision,—generally occurred singly, though sometimes in twos or short chains. They were never seen in the blood-corpuscles. The shape of the individual was oval, though with ordinary magnification no difference between the diameters could be observed. They were not stained by ordinary methods and decolorized readily when stained by Gram's method. The specimen from fresh blood had a surrounding capsule which was absent in the dried form.

The growth of the organisms or culture media was carefully studied. Upon the solid culture media it was very slow. Upon all the solid media the colonies appeared under the microscope as minute dew-drop-like points measuring one-half by one-half millimetres, and not becoming confluent for months. The organisms continue vital upon the solid media three to four months, if protected from drying In the liquid culture media, especially in bouillon, the organisms form a yellowish-white, finely-granular, light precipitate at the bottom of the glass.

The inoculation of the organisms beneath the skin and into the blood of rabbits was without result. Inoculated mice died in three days with the cocci distributed through the blood.

Serumtherapy in Cancer.

Salvati and Gætano (*Riforma Medica*, August 12 and 20, 1895) report cases of cancer treated by the injection of the serum of a horse previously treated with intratrachial injections of a sarcoma-juice. Five cases were treated; no ill-effects were observed. The lancinating pains disappeared after a time—ten to twenty injections—but later on returned. Hemorrhage from the ulcerated surface was a frequent result of the injections. The tumors were reduced in size in the beginning of the treatment, but no actual arrest of growth took place in any case. The injections cannot be regarded as a cure.

Changes in Nerve-Cells in Different Functional States.

Lujano (*Lo Sperimento*, August 6, 1895) concludes from experimentation that the activity of nerve-cells is accompanied by turgescence in the protoplasm of the cell-substance. Fatigue produces a progressive diminution of the size of the cell. Ordinarily in moderate activity the nucleus does not change in volume, but in continued forced activity the changes induced are similar to those in the protoplasm, but not as marked. The first expression of cellular activity is thought to be an increase of chromatin, the late changes exhibit a diminution and diffuse distribution of it.

Flagellate Protozoa in the Intestinal Canal of Man.

Schürmayer (*Centralblatt für Bacteriologie und Parasitenkunde*, October 5, 1895, Band xviii, No. 11, p. 324) found flagellate protozoa, evidently a form of trichomonas in the intestinal canal of a child 1 year old with symptoms resembling summer complaint. The organisms were spindle and club-shaped, possessed two flagellæ at the enlarged end, and contained bodies (contractile vacuoles) the exact differentiation of which is not entirely clear,—reservoir, chromatophor, eye-spot, etc., found in allied protozoa being absent.

It was found impossible to secure cultures of the protozoa free from bacteria.

Erysipelas Toxines in Malignant Diseases.

Czerny (*Münchener medicinische Wochenschrift*, September 3, 1895) states that he has not observed that cases of malignant disease are much benefited by injection with the combined toxines of erysipelas and prodigiosus. He has, however, seen two cases, one a woman, 35 years of age, with a sarcoma of the parotid as large as the fist, the other an advanced case of carcinoma of the upper jaw: he observed softening of the tumors and material improvement.

Considering that a distinct constitutional and local reaction takes place when the toxines are injected; that sarcomata especially may sometimes be cured; that the development of carcinoma is sometimes retarded; that the effect of the treatment soon passes off without bad sequelæ, and that it is only to be recommended in the treatment of inoperable cases, he advises that it always be tried.

MISCELLANEOUS.

THE SAMUEL D. GROSS PRIZE.

THE second quinquennial prize of one thousand dollars under the will of the late Samuel D. Gross, M.D., will be awarded January 1, 1900.

The conditions annexed by the testator are that the prize "shall be awarded every five years to the writer of the best original essay, not exceeding one hundred and fifty printed pages, octavo, in length, illustrative of some subject in surgical pathology or surgical practice, founded upon original investigations, the candidates for the prize to be American citizens."

It is expressly stipulated that the successful competitor, who receives the prize, shall publish his essay in book form, and that he shall deposit one copy of the work in the Samuel D. Gross Library of the Philadelphia Academy of Surgery.

The essays, which must be written by a single author in the English language, should be sent to Dr. J. Ewing Mears, 1429 Walnut Street, Philadelphia, before January 1, 1900.

Each essay must be distinguished by a motto, and accompanied by a sealed envelope bearing the same motto, and containing the name and address of the writer. No envelope will be opened except that which accompanies the successful essay.

The committee will return the unsuccessful essays, if reclaimed by their respective writers or their agents, within one year.

The committee reserves the right to make no award if the essays submitted are not considered worthy of the prize.

CORRESPONDENCE.

To the Editors of the UNIVERSITY MEDICAL MAGAZINE:

SIRS: The discussion provoked by your editorial on hysterectomy for puerperal sepsis in the August number of the MAGAZINE is a sign of the interest the subject excites. The close attention devoted to it by many earnest men will soon establish clinical rules of practice that will guide us aright. Meanwhile, whoever attempts to direct opinion on the matter should speak from a large experience in puerperal sepsis and after an extensive trial of the operation itself. It

seems to me that the views expressed by Dr. Noble in your last issue are based on neither of these grounds. In the first place, his reasons for refusing the operation are, I think, unsound,—namely, a spreading peritonitis and grave general septic symptoms. Both these conditions may exist, and the latter surely will in a virulent septic endometritis which has furnished so far, and will continue to do so, the most frequent indication for hysterectomy in sepsis during the first few days of the puerperium. Indeed, I know of no other form of sepsis in the early puerperium that would be likely to call for the operation. Unfortunately the results of hysterectomy for this form of puerperal sepsis have been thus far uniformly bad.

To be effective, the uterus must be removed within twelve hours of the first appearance of decided symptoms. This has not yet been done because symptomatically the operation has not seemed warranted till too late. I have operated as early as thirty-six hours after the appearance of symptoms, but even then was too late. The bacteriologist may, in the future, help us to an early diagnosis of a mixed virulent infection of the endometrium.

Now, as to the most promising field for hysterectomy-suppurative metritis. This condition usually develops late in the puerperium. It is not on this account less fatal. It is, moreover, sometimes the starting-point of a spreading peritonitis, and it is always associated in time, at least, with the gravest general symptoms of sepsis. On these points Dr. Noble is most seriously in error. Nor is the hysterectomy a mere matter of technique in such a case. It is, on the contrary, an absolute necessity, as any one may see by a study of two of my reported cases that recovered after the operation.

The present status of hysterectomy for puerperal sepsis may be thus defined: for the acute rapidly progressive and virulent forms of sepsis early in the puerperium (almost always a mixed infection of the endometrium) the operation so far has been a failure; for suppurative and ulcerative metritis usually, but not necessarily, appearing in the latter part of the puerperium it has been a brilliant success.

The failures thus far encountered in a certain class of cases, while discouraging, need not deter us from a further trial of the operation. The proper case for operation would surely have been fatal without it, and even an occasional success will repay us for many failures.

The greatest difficulty in hysterectomy for puerperal sepsis is, and will continue to be, the selection of cases for operation. For the decision of this question the most extensive experience in and knowledge of the various forms of puerperal sepsis will be required.

Very respectfully,

Barton Cooke Hirst, M.D.

BOOK NOTICES.

CUTANEOUS MEDICINE. A systematic treatise on the diseases of the skin. By LOUIS A. DUHRING, M.D., Professor of Diseases of the Skin in the University of Pennsylvania. Part I. Philadelphia: J. B. Lippincott Company, 1895.

The announcement of this work will interest not only those who are devoting their attention to dermatology, but also those engaged in general practice and in the other departments of medicine, and students as well. Dr. Duhring's Practical Treatise on Diseases of the Skin is so widely and so favorably known, both in this country and Europe, that this work cannot fail to attract more than the usual attention.

The intimate relation that exists between affections of the skin and general diseases is too well known to need comment. On the other hand, the manifold conditions to which the skin is subject renders its consideration as a separate department of medicine necessary.

The chapter devoted to anatomy is of especial excellence. A large number of illustrations are inserted to supplement the text. This is followed by a chapter on the physiology of the skin. An accurate knowledge of the anatomy and of the physiology of the skin is so essential to an intelligent understanding of the pathological changes to which it is subject that the value of the subsequent portions of the work would be much impaired without the full and careful description of these given by Dr. Duhring. The subsequent chapters embrace a general consideration of the subjects of symptomatology, etiology, pathology, diagnosis, treatment, and prognosis The student is thus prepared for the study of individual diseases which is to follow.

The matter has been presented in a plain and attractive style, and the practical aspect has been especially emphasized, without neglecting, however, the scientific side of the subject.

The work well represents the advanced position that dermatology holds to-day. The rich experience of the author has enabled him to weigh judicially the vast mass of recent literature on this subject. Of this he has made free use, and in addition has added much from personal observation. The portions that relate to the practical aspect represent largely the author's personal convictions, based upon his extensive clinical experience.

A SYSTEM OF SURGERY. Edited by FREDERICK TREVES, F.R.C.S. Vol. I. Philadelphia: H. C. Lea's Son & Co., 1895.

The appearance of a new System of Surgery, including among its authors twenty-five of the best known British surgeons, and edited and partly written by a surgeon of Mr. Treves's eminence, is a note-

worthy event, and a glance through the first volume of this latest important addition to surgical literature justifies this statement. The articles, while necessarily of different degrees of literary merit, vary but little in their practical usefulness. The key-note of the whole, the pervasive atmosphere of the book, is straightforward condensation of basal facts, presented in an easily understood and readable form. The editor disclaims, in cases in which subjects overlap, any attempt at harmonizing divergent views or at securing ideal uniformity. But it seems apparent that in the preparation of the book there have been careful guidance and the enforcement of strict adherence to a well-digested plan as regards essentials. The result is a work which is really readable, and a collection of articles that reflect credit on both authors and editor.

The section on surgical bacteriology, with which the volume opens, is an excellent epitome of our knowledge of this subject, and contains in an appendix some useful information as to the staining of bacteria. Inflammation, ulceration, suppuration, gangrene, wounds, and contusions are treated of by Watson Cheyne, always a clear and forcible writer, and with a special understanding of these subjects born of long practical and experimental investigation of them. The same writer has a few interesting pages on syncope and shock.

Mr. C. B. Lockwood deals with erysipelas, pyemia, tetanus, and tetany, and burns and scalds. He retains the old Dupuytren classification of the latter injuries for the excellent reason that it is convenient and customary, and, indeed, it has not been improved upon. It is surprising to observe that he mentions Carron oil without condemnation, and even states that the addition of thymol has been recommended "to increase its antiseptic action." The antiseptic qualities of linseed oil and lime-water yet await discovery.

Mr. Treves himself has contributed a chapter on tuberculosis that within a few pages contains more sound practical teaching than is often found in extensive treatises. His article on the "Influence of Constitutional Conditions upon Injuries" is somewhat misleading as to title, as it includes more than it promises and thoroughly discusses the injuries inflicted by the surgeon, or, in other words, the general subject of operation. It is admirably done, and the same remark may be made of his smaller articles on hemophilia and on the surgical relations of hysteria.

Jonathan Hutchinson, Jr., has valuable papers on syphilis and gonorrhea. In the former he peremptorily (and properly) negatives the extravagant claims of the advocates of the hypodermatic method of treatment. The latter subject (gonorrhea), especially important in a book which is concerned chiefly with the pathology, symptoms, and treatment of the diseases that come within the scope of surgery, is handled with so much brevity as to leave a very unsatisfactory impression. It is safe to say that the general practitioner whose knowledge of the treatment of gonorrhea was limited to the page and a half here given would have difficulty with his cases. Both its frequency and its important complications and sequelæ call for more detail and also more modern teaching.

The section on tumors by Bland Sutton is only disappointing because there is not more of it. Pearce Gould's articles on injuries

and diseases of blood vessels and on aneurisms are thorough, and include adequate mention of the most recent methods of diagnosis and treatment.

Mr. Stanley Boyd's article on fractures will emphasize somewhat to American readers the differences in the treatment of these important injuries in this country and in Great Britain. But it must be said that his accounts of symptoms, of diagnosis, and, in the main, of treatment are very clear and satisfactory.

Space does not permit of more than a mere allusion to the very valuable articles of Mr. Arthur Barker on diseases of the joints, Mr. Bowlby on the nerves, and Mr. Clutton on the bones. These, with some minor articles, complete a volume that reflects the greatest credit on the authors, and must add to the already distinguished reputation of the editor.

PHYSICAL AND NATURAL THERAPEUTICS: The Remedial Uses of Atmospheric Pressure, Climate, Heat and Cold, Hydrotherapeutic Measures, Mineral Waters, and Electricity. By GEORGES HAYEM, M.D., Professor of Clinical Medicine in the Faculty of Medicine of Paris. Edited by HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. With 119 illustrations; 8vo, pp. 426. Philadelphia: Lea Brothers & Co., 1895.

In Part I the author discusses the effects of respiration in compressed and rarefied air. He finds inspiration of compressed air chiefly indicated in the cases in which predisposition to phthisis exists. It favors the expansion of the lung after the subsidence of a pleurisy and hastens the absorption of exudates. Expiration into rarefied air is useful in emphysema and chronic bronchitis.

Part II treats of climate. The different factors which go to make up climate—latitude, altitude, geographical position, and wind—are described. The author mentions the principal climates and health resorts of the world and indicates the class of cases for which each is suited. The editor contributes a section on American climatic treatment, which is excellent as far as it goes, but is too brief and is incomplete.

Part III deals with thermic agents. He finds that they effect an exaltation or depression of nervous energy; that they may be stimulant or tonic, and depressant or sedative. He states that the naked body can remain indefinitely in an atmosphere of 90° F., but that in order that the conditions be equivalent the (water) bath must have a temperature of 104° to 112° F.

In Part IV the author takes up hydrotherapeutic measures. Logically this section is a continuation of the preceding one.

Part V deals with mineral waters. This is the best section of the book. The author describes the various better-known springs, gives the important constituent of the waters, and indicates their therapeutic usefulness. He states his own convictions with regard to them without hesitation. For example, he declares that syphilitic

manifestations of the secondary period are aggravated by sulphur waters; and that chlorosis is treated better at home than at climatic resorts or chalybeate springs. The first thing to do in the latter disease to impose absolute rest in bed for two or three weeks. The next thing is to insist upon a severe alimentary regimen. The best diet consists of milk and raw meat. Finally, at the end of eight days, when the digestion has improved, iron may be given. He prefers the protoxalate (the oxalate of the protoxide) of iron, which he prescribes in doses of three to six grains at a meal. He says that this preparation of iron does not constipate. At the end of fifteen days or a month the patient may be allowed to get up, and at the end of five or six weeks the cure will be far advanced, if not achieved.

The editor adds a well-written section on American mineral waters.

Part VI is devoted to a very complete discussion of electricity, in fact, nearly half the book is taken up with it.

The book is a very useful one, and we can commend it heartily. The sections on balneology and mineral waters are particularly valuable.

Practical Dietetics with Special Reference to Diet in Disease. By W. Gilman Thompson, M.D., Professor of Materia Medica, Therapeutics, and Clinical Medicine in the University of the City of New York, etc. 8vo., pp. xxii and 802. New York: D. Appleton & Co., 1895.

It is a great pleasure to welcome Dr. Thompson's work on dietetics. For a long time we have longed for a book giving detailed and accurate information as to foods, their nutritive values and their appropriate uses in disease. Other books have appeared, written by English and Continental writers, but they have not been suited to American needs.

Part I deals with foods and food preparations. The author discusses the uses and values of water, salts, and of proteids, carbohydrates, and fats. He is not a vegetarian, as will appear from the following quotation: "In regard to an exclusive or almost exclusive vegetable diet for man, the universal experience has been that, while it may keep him in apparent health for some time, it eventually results in a loss of strength and general resisting power against disease, which becomes evident after some months, if not before." Forty-three pages are devoted to milk, which is considered very thoroughly. The author is not, however, a slavish devotee of the exclusive milk diet. His description of bread-making is excellent. We are glad he does not accept the popular idea that coarse, sour, black bread is necessarily more nutritious than bread made from refined wheaten flour.

Part II is given to stimulants, beverages, and condiments. His treatment of alcohol is just and discriminating. He considers alcohol wholly unnecessary for the human organism in health, but that there are a number of diseases in which its temporary use is of posi-

tive service, and a number of cases in which it becomes a necessity to prolong life.

In Part III the author takes up cooking; food preparation and preservation; the quantity of food required. The different methods of cooking are described and the appropriate method for special foods. He thinks most persons in comfortable circumstances eat too much and drink too little water. Sir Henry Thompson is quoted as saying that he has observed more mischief from erroneous habits of eating than from the habitual use of alcoholic drink.

Part IV deals with foods required for special conditions,—age, sex, weight, heredity, race, climate, and season.

In Part V the author considers food-digestion, and the conditions which especially affect digestion. Under this heading come hours for meals, appetite, variety in diet, and the effects of the nervous system, circulation and temperature upon digestion, and the products and mechanism of digestion. This is one of the most important and best-written sections of the book.

Part VI is devoted to the general relations of food to special diseases, and the diseases which are caused by dietetic errors. In this part are discussed the effects of overeating and drinking, and the various poisonings by animal and vegetable parasites, ptomaines, bacteria, and food adulterants.

Part VII treats of administration of food to the sick. The rules and suggestions are excellent.

Part VIII is given to diet in disease. Its comprehensiveness may be judged from the fact that it contains 294 pages. Infectious diseases, diseases of the respiratory and circulatory systems and of the alimentary canal are taken up in turn and the appropriate dietetic management indicated. The different methods of treating obesity are described, as well as the diseases especially influenced by diet,—rickets, scrofula, and scurvy. His general rules for dyspeptics are the best we have seen.

Part IX, the concluding part, is devoted to rations and dietaries. The author gives the army and navy diets, prison diets, and the diet for athletic training, for nursing mothers, for infants and children, and the dietaries of some hospitals. In an appendix are given receipts for invalid food and beverages, suitable for fevers and convalescence from acute illness.

The book is encyclopedic in its completeness. We have noticed very few typographical errors, and only a few sentences which read as though they had been written hastily. These things are nearly inseparable from a first edition, and do not spoil the general excellence of the book. We recommend it most heartily. It fills a place in medicine more important even than therapeutics, and one which has been too much neglected.

A Text-Book of Practical Therapeutics, with especial reference to the Application of Remedial Measures to Disease and their Employment upon a Rational Basis. By Hobart Amory Hare, M.D., B.Sc., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia, etc. Fifth edition, enlarged and thoroughly revised. 8vo, pp. 740. Philadelphia: Lea Brothers & Co., 1895.

A book which has reached its fifth edition in as many years evidently fills its place in literature and is beyond criticism. In the present edition the author has revised each article and made a number of additions. He discusses the antitoxin treatment of diphtheria, and seems to favor its use. No mention is made of other antitoxins or of nucleins. Myxedema is not mentioned, and, of course, no reference is made to thyroid feeding in this disease.

In a hasty examination only one typographical error was noticed. On page 198, "salicylat*is*" should be "salicylat*es*." In the author's directions for compounding pills he writes: "ft. *in* pil. No. —." The *in* is superfluous.

These criticisms are not made in any carping spirit, for the book is a useful one, and is a safe and practical guide to rational therapeutics.

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JANUARY, 1896.

THE TREATMENT OF FIBROID TUMORS OF THE UTERUS.

By Charles B. Penrose, M.D., Ph.D.,

Professor of Gynecology in the University of Pennsylvania.

The treatment of fibroid tumors of the uterus is a subject of interest to every physician. The disease is so common that it must necessarily be considered by all of us, the general practitioner as well as, if not more than, the specialist in gynecology. The treatment of uterine fibroids may be said to have passed through several widely differing phases within the practical life of even young physicians. And some of the comparatively recent, though now antiquated, views on this subject are still clung to by those who have not kept well abreast with the remarkable improvements in our methods of dealing with uterine fibroids, which have been introduced in the last very few years. These rapid changes in the manner of treatment have produced a state of doubt in the minds of many as to what is now the best method to follow. On the one hand we remember the advice: to watch the uterine fibroid, never operate, treat symptoms, and trust to the menopause for cure. An American text-book on surgery, in the edition of 1889, says of fibroid tumors of the uterus: that removal by operation is attended by so much danger that it should never be attempted except in extreme cases. On the other hand we hear the advice: perform hysterectomy in every case of fibroid tumor of the uterus.

Between these two extremes what shall we follow? The first advice is based upon three erroneous assumptions. The first is that there are but few real dangers to be feared from a fibroid tumor of the uterus; it causes hemorrhage, which may usually be controlled;

and that it is objectionable merely from the inconvenience due to its bulk.

The second is that it stops growing at the menopause, that it begins to atrophy, and that symptoms referable to it disappear.

The third is that operation for the cure or removal of the uterine fibroid is followed by an enormous mortality. Let us review a few of the dangers and discomforts to which a woman with a fibroid tumor of the uterus is subjected.

The tumor may undergo cystic degeneration, forming a fibro-cystic tumor, which in the rapidity of its growth and its termination resembles a multilocular ovarian cyst. It crowds the patient out of existence.

The tumor may become inflamed with the formation of peritoneal bands or adhesions. The Fallopian tubes often become infected and obstructed and pyosalpinx results. Tubal disease is a very common accompaniment of fibroid tumors of the uterus. The fibroid tumor itself may undergo suppuration or it may become gangrenous. Though it has not been conclusively proved, yet in all probability fibroid tumors predispose to cancer and sarcoma. The chronic inflammation of the endometrium, which is a constant accompaniment of fibromata, causes proliferation of the endometrial glands, a typical form of adenoma. This may pass to the atypical and become epitheliomatous. Several conclusive cases illustrating these changes have been reported; and a number of cases of undoubted sarcomatous degeneration of fibroids are also on record. Fibroid tumors by pressure upon the ureters may produce grave kidney disorders,—hydronephrosis, pyelitis, pyelonephritis. These accidents are most common when the fibroid tumor is chiefly of pelvic growth. Every abdominal surgeon has met with them, and many deaths after operation are to be attributed to renal degeneration.

The effect of large fibroid tumors upon the heart muscle is often overlooked. Every abdominal tumor causes an increased vascular pressure, and consequently reacts upon the heart. Hofmeier, in 1884, insisted on the frequency of cardiac disease in cases of abdominal tumor, especially with fibromata.

He collected eighteen cases where sudden death occurred from heart-failure. In three there was fatty degeneration and in fifteen brown atrophy of the heart.

Such are some of the more serious dangers accompanying fibroid tumors of the uterus. They are not usual, but at the same time they are by no means rare, and must not be lost sight of.

We may say that, notwithstanding these dangers, the majority of fibroid tumors of the uterus grow until the menopause, then stop and

undergo atrophy. This, however, is by no means always true. They usually first appear when the woman is between thirty and forty years of age. The period of the menopause in fibroid disease of the uterus is postponed often for ten or twelve years; so that a woman may suffer with the tumor for twenty-five years before cure by nature can be hoped for.

Even when the menopause is reached there is no certainty of relief. I have been obliged, on account of urgent pressure symptoms, to remove a calcareous fibroid tumor of the uterus from a woman eighty-two years of age. I have recently seen a woman bedridden from an enormous fibroid which she had watched growing for thirty years following the advice given to her in the preoperative era. Many cases have been reported where the menopause has not arrested the growth of the tumor. Every abdominal sugeon meets women who in despair are driven to operation after sad and useless lives, during which they were sustained by the hope—finally elusive—of cure at the menopause. Out of every ten operations for fibroid tumor which I perform one or two are upon such women.

The final reason for the expectant plan of treatment was the danger of operation. This reason is now eliminated. It may confidently be said that the danger of hysterectomy is much less than the combined dangers to which a woman is constantly exposed with a fibroid tumor of the uterus. The mortality should not be greater than 5 per cent. to 10 per cent. in operations for all kinds of fibroids. It should not be said that the expectant plan of treatment is never advisable in case of fibroid tumor of the uterus. There are some cases where this treatment should be followed. In small fibroid tumors of slow growth in young women where the growth is not intraligamentous and does not produce pressure on pelvic nerves, rectum, ureters, or bladder, and where there is not much suffering from backache, headache, and hemorrhage, the expectant plan of treatment may be followed. Especially if the woman is anxious for children. Though the chances of conception are diminished, though the course of pregnancy is difficult and uncertain, and though labor may be complicated, yet it should not be forgotten that conception and delivery at full term often occur even in case of large fibroid tumors of the uterus. In older women, however, or in women who have been married for several years and have not conceived, this consideration will not enter. In such cases operation is advisable if there is much hemorrhage or suffering. It should always be remembered that all symptoms will probably increase in severity, at any rate until the menopause, and that the menopause will be delayed.

In the case of an old woman who has passed the menopause, in whom the fibroid tumor has stopped growing, and in whom there is no discomfort from the size of the tumor or from pressure, operation is not indicated.

With such few exceptions, however, operation for uterine fibroid is the safest plan of treatment. We can choose one of two operations, the value of both of which has been demonstrated by large experience: salpingo-oöphorectomy and hysterectomy.

The choice of operation depends upon the character of the growth with which we have to deal. There are several varieties of fibroid tumor of the uterus, which differ from each other in structure and in location or in direction of growth.

The cystic fibroid tumor is of rapid and indefinite growth. The growth continues after the menopause and is not arrested by the operation of oöphorectomy. Experience has shown that oöphorectomy is not followed by as good results in case of edematous fibroids and in soft myoma as in the harder forms of fibroid tumor.

When a uterine fibroid develops upward into the abdomen it produces no pressure symptoms until it attains a large size. Peritoneal irritation from a freely movable subperitoneal fibroid may cause ascites, or local peritonitis may result in the formation of intestinal adhesions. When the tumor, however, develops laterally between the layers of the broad ligament or downward and backward below the bottom of Douglas's pouch the most serious pressure symptoms accompany tumors of but small size. Neuralgic pains in the legs, or even paralysis of one or both legs, obstruction of the ureters or of the rectum may result. I have recently operated upon a woman who had been subject to attacks of complete paralysis in the left leg—during which she would fall helpless in the street—from sudden pressure of an intraligamentous uterine fibroid about the size of a duck-egg. She was forty years of age and had been told to wait for the menopause for cure, and had already waited nine years, when suffering drove her to the operation which she now regrets was not performed long ago.

In many cases of uterine fibroid disease of the tubes and ovaries is also present. The ovary may be drawn out into a cord extended upon the tumor, or it may be flattened out upon the surface of the tumor. In either case it is difficult to remove all ovarian tissue without great danger of hemorrhage from the large venous sinuses of the tumor. In other cases the ovaries may be bound by old inflammation to broad ligament, intestines, or pelvic wall, and there can be no certainty of complete removal. It should always be remembered that castration in cases of fibroid tumor must be completely performed:

all ovarian tissue and the Fallopian tubes to the uterine cornua must be removed. Several cases have been reported in which, though the ovaries had been completely removed, the growth of the tumor remained unarrested, and hemorrhage continued undiminished because part of the Fallopian tube had been left behind. When an ovary has been shelled out from a mass of adhesions the operator cannot always be certain that no ovarian tissue remains. And any amount of ovarian tissue, however small, may permit the continued growth of a uterine fibroid. I have twice seen fibroid tumors develop in the uterus after salpingo oöphorectomy for pelvic inflammatory disease. In one case double salpingo-oöphorectomy had been performed for double pyosalpinx. The left ovary which was firmly adherent to the rectum was removed with difficulty. The uterus was normal in size and was apparently free from fibroid growth. Five years later the woman returned for operation on account of excessive hemorrhage from a fibroid uterus. I performed hysterectomy, and found a small portion of ovarian tissue still adherent to the rectum. The second case was similar, and two years after the primary operation I found a subperitoneal fibroid the size of a duck-egg, which had developed in the fundus, and a small portion of ovary adherent to the posterior surface of the left broad ligament.

There are some subjective symptoms of uterine fibroids which cause much suffering and are yet not dependent upon the size or the direction of growth of the tumor. These are backache, headache, and reflex nervous disturbances. They are probably referable to involvement of the body of the uterus or to resulting disease of the endometrium. The backache and headache are directly caused by the uterine disease and disappear immediately and forever with the removal of the tumor. I recall one striking example of reflex disturbance. The woman had a symmetrical soft uterine myoma the size of a child's head. When standing she had continuous nausea and sensation of a lump in the throat. These feelings were much relieved in the recumbent posture, but pressure upon the uterus, made in bimanual examination, brought them back with full force. They immediately disappeared with the disappearance of the tumor. In such cases castration is not the operation to choose. It is not the size or direction of the tumor which causes the suffering. It is the diseased uterus itself, and it is this which should be removed.

The operation of castration, if thoroughly performed in suitable cases, arrests hemorrhage and stops the growth of the tumor, and brings about atrophy in the very great majority of the cases,—probably in ninety-five per cent. As will be concluded from the previous considerations, the suitable cases for castration are hard fibroid tumors

of small size, of such development that no pressure is produced, and when there are no marked subjective or reflex symptoms.

Hysterectomy is advisable in the vast majority of cases of fibroid tumor of the uterus. In all cases of fibroid tumor in which there are urgent symptoms from pressure, or in which there are urgent subjective symptoms referable to the uterus; in all fibro-cystic, edematous, and myomatous tumors; in all tumors of intraligamentous or subperitoneal growth; in all large tumors which have become decidedly abdominal; in all cases in which we cannot safely and surely remove all ovarian tissue and the whole of the Fallopian tube.

The operation of castration should never be undertaken unless the operator is prepared to perform hysterectomy, should this be found necessary.

The expectant plan of treatment should be reserved for the comparatively few cases which have already been considered.

PRIMARY CHOLECYSTENTEROSTOMY BY MEANS OF THE MURPHY ANASTOMOSIS BUTTON, WITH A REPORT OF TWO SUCCESSFUL CASES, FROM ONE OF WHICH WAS OBTAINED MORE THAN FIVE HUNDRED GALL-STONES.[1]

By B. F. Baer, M.D.,

Professor of Gynecology in the Philadelphia Polyclinic.

It is not necessary here, or at the present time, to plead the justification or urge the importance of surgical interference for the relief of the great and prolonged suffering, and frequently fatal termination, which results from obstruction in the biliary ducts; but taking it for granted, as proven from the literature of the subject and your personal knowledge, that medicine fails utterly to relieve in many instances, I will proceed at once to record my own experience with the latest and most successful operation which has yet been devised in gall-bladder surgery.[2]

Primary cholecystenterostomy with the Murphy button has now had a fair trial in the hands of its author and of several other surgeons. The uniform success which has thus far resulted places this method far in advance of the older operation of cholecystostomy;

[1] Read by title before the Pennsylvania State Medical Society, May, 1894.

[2] Dr. J. B. Murphy, New York Medical Record, December 10, 1892, and January 13 and 20, 1894.

first, because, even after cholecystostomy has been successfully performed, it is often necessary (in about one-third of the cases) to make a secondary cholecystenterostomy on account of the failure of the resultant biliary fistula to close, and, second, because, in either event, by the latter operation the patient's condition is much improved, for the gall-bladder has now two permanent outlets instead of one; and as this new-made duct is of much greater calibre than the natural one any calculus that may form in the future can readily escape.

The technique of this operation is wellnigh perfect, since it is based not only upon the principle which has proven the most successful in abdominal and pelvic surgery,—viz., clean, complete, and rapid operation with immediate closure of the peritoneal cavity, but more especially because it permits of the direct discharge of the biliary secretion into the intestinal tract.

The result obtained in the cases thus far recorded has practically demonstrated that the statement of the author of this ingenious device was not too strong when he said that "this operation would produce the same revolution and favorable change in the surgery of the gall-bladder that the intra-abdominal treatment of the pedicle did in the treatment of tumors of the uterus and its appendages."

The first to attempt to overcome the difficulty arising from obstruction in the natural bile-tract, by cholecystenterostomy, was von Winiwarter, who, in 1881, succeeded in establishing an artificial fistula between the gall-bladder and colon after six attempts on the same patient, covering a period of sixteen months. Great credit is due Winiwarter and the patient for their remarkable courage and persistence. This operation was secondary to cholecystostomy, in which the external biliary fistula had failed to close.

In 1883, Dr. J. M. Gaston, of Atlanta, Ga., in a series of experiments upon dogs, tried to establish a fistula between the gall-bladder and duodenum, through pressure atrophy, by means of elastic ligatures surrounded by a row of serous sutures to protect the peritoneum. Although these experiments failed, Dr. Gaston is entitled to much credit for his work, as it gave an impetus to others for further efforts in the same direction. But so great were the difficulties encountered that it was nearly seven years after the publication of Winiwarter's case before another attempt was made to perform this operation on man. In 1887, Monastyrski, and, a month or two later, Kappeler, performed the primary operation by suture, the latter with success. They were followed by others, so that, according to Murphy, up to December, 1893, twenty-three primary cholecystenterostomies had been performed by different operators and different methods of suturing, but with a mortality of 35 per cent. The technical difficulties in all of these operations by suture were extreme.

In 1892, Dr. Murphy succeeded after a number of experiments in perfecting an instrument which he has named the "anastomosis button," and by which he hoped to overcome the difficulties which had hitherto been encountered in making an artificial attachment and duct between the fundus of the gall-bladder and the intestine. That he has succeeded even beyond his fondest hopes the result has shown, for by this ingenious device the new junction is accomplished by a single operation, and the mortality has been reduced from an average of at least 25 per cent. to an absolutely *nil* mortality. There have been up to this time, so far as I have been able to learn, including the two cases which I here record, nineteen operations by this method. All of these cases recovered,—100 per cent! These operations were performed by nine different operators, and in all of the cases the result has been a complete restoration to health with no recurrence of symptoms.

When it is also considered that even after recovery from cholecystostomy the patient is often left with a permanent biliary fistula, which sometimes ultimately results in death from exhaustion, or compels a submission to a secondary cholecystenterostomy under far more unfavorable circumstances, the benefit obtained from the primary operation by this method appears marvellous.

It would not be just, however, to draw this comparison without calling attention to the fact that much of the earlier gall-bladder surgery was done under more unfavorable auspices than were these operations by the Murphy button. Surgery in this field was new, and, like the pioneer in all work, the operator met with the old, neglected cases which submitted to operation as a last resort. Further, the technique of abdominal surgery had not yet been brought to the perfection which prevails at the present time. Here, as in abdominal surgery in general, the early operation, while the patient and tumor are both in good condition, gives promise of the greatest success.

Symptoms and Diagnosis.—The most constant and prominent symptom of biliary obstruction is paroxysmal pain in the right hypochondriac and epigastric regions. The pain is usually sharp, excruciating, and radiating to either shoulder, to the umbilical region, and sometimes over the entire abdomen; nausea and vomiting are often present. The paroxysm is sometimes followed by or associated with jaundice of more or less pronounced type. This indicates that the obstruction involves the common duct, and, if due to calculus, that the latter has probably passed from the cystic or hepatic into the common duct. When jaundice is marked, the stools are clay-colored. Partial obstruction may exist, however, without the paroxysm of pain

or jaundice; the symptoms then may be simply gastro-intestinal disturbance associated with headache,—bilious headache.

Physical examination is usually of value, showing enlargement of the gall-bladder and sometimes of the liver. Physical signs may, however, be entirely absent, or, if present, very difficult to make out on account of thick abdominal walls, or rigidity of abdominal muscles from fear of pain from pressure. If the abdominal wall is thin and the gall-bladder enlarged, as in one of my cases, the tumor of the gall-bladder is easily made out; but if the wall is thick, and the gall-bladder small, as in the other case, the physical signs may be simply tenderness upon pressure immediately over the gall-bladder. I have found this sign of value taken in conjunction with the rational signs.

When tumor of the gall-bladder is present, it is usually pyriform, with the small attached end or neck corresponding to the normal position of the gall-bladder, the enlarged body extending downward. It may be very mobile from elongation of the neck, so as to give rise to difficulty in differential diagnosis from movable or floating kidney, or tumor of pancreas or bowel, and, if very large, from ovarian tumor. But if its shape, peculiar position, history of case, symptoms, and the attachment of the tumor are carefully observed, diagnosis should in most cases be easily determined.

Indications for Operation.—This operation is especially indicated in all cases of more or less pronounced and frequently recurring jaundice or biliary colic resulting from partial or complete obstruction in the biliary ducts, if the obstruction be due to cholelithiasis or other benign disease. By other benign disease is meant a permanent narrowing of the bile-tracts from inflammatory causes within the gall-bladder or ducts (catarrhal), or from inflammatory conditions (peritonitis), or new growths, resulting in pressure from without. Of course, it is to be understood that medicinal remedies have been given a proper trial and have failed to give more than temporary relief. The operation should not be performed if a diagnosis of malignant disease is made, either before or after exploratory incision. Absence of enlargement of the gall-bladder does not contra-indicate operation, but it vastly increases the manipulative difficulties and renders the procedure far from simple, especially if, in addition, the abdominal wall is thick.

Case I.—Mrs. R., aged 36; five children and three miscarriages; last pregnancy, miscarriage, three years ago. Since the birth of the last child, six years ago, she has complained of periodical gastro-intestinal disturbance associated with the most severe headache. The attacks would usually continue for three or four days, during which time she would be utterly prostrated; they were at

first invariably attended with jaundice, but later the jaundice was less marked. For many years she had been aware of the presence of a small tumor in the right umbilical region. This had been pronounced floating kidney. The tumor was at first about the size of a hen's egg. During the "bilious attacks" it would become larger and excessively tender; at these times there would be constant epigastric pain, at times associated with nausea and vomiting; the attacks would usually end with diarrhea, consisting largely of mucous evacuations. It is notable that there was at no time present in the case severe hepatic colic. The patient had been almost constantly under treatment during these years. In the fall of 1893 she consulted Dr. E. L. Vansant for a throat affection, who, on examination into her general condition, learned of the presence of the tumor. Dr. E. P. Davis then saw the patient in consultation with Dr. Vansant, and on November 24, 1893, through the kindness of these gentlemen, I was requested to take charge of the case.

The patient presented an appearance of slight cholemia with dryness of the skin and general emaciation. Physical examination revealed a tumor about the size of a goose-egg and somewhat pyriform, occupying the right umbilical region. The tumor mass was quite mobile all over the right side of the abdomen, as far down as the brim of the pelvis, but it seemed to be more at home in the hepatic region, where it was anchored. I concurred with the opinion that the tumor was a greatly enlarged gall bladder, and that it probably contained a large number of stones. Operative measures were advised and decided upon.

Operation, February 11, 1894, assisted by Drs. E. P. Davis, Theodore A. Erck, and Alvah M. Davis. Dr. Vansant was present. An incision was made two inches to the right of the median line, beginning directly over the normal position of the gall-bladder and extending downward three inches. This exposed the enlarged gall-bladder, which was now drawn through the incision and examined. It was quite purple in color from venous congestion, but otherwise its tissues appeared to be in a healthy condition. It was very heavy and tense from the impacted stones. The cystic duct was quite elongated and distended, being also packed with calculi. The calibre of the duct was too much narrowed to admit of the passage of the stones, for the common duct seemed to be empty. A knuckle of intestine below the duodenum was next brought into the incision. Sterilized gauze was then arranged under the gall-bladder and intestine to protect the peritoneal cavity. A needle, armed with a fine silk ligature, was now inserted in the bowel, opposite the mesentery, and a stitch taken through its wall. This was repeated twice, the

stitches being about one-third of an inch apart. The needle was next inserted at a right angle and a similar stitch taken; then two more stitches of like character were taken in a reverse direction parallel to the first. This formed a running thread. An incision was now made in the intestine between the parallel sutures, care being taken not to cut the thread in the cross suture. The button was then passed within the bowel and the ligature tied around the central cylinder. The gall-bladder was next prepared in a similar manner by the insertion of a running thread on its under side, near the fundus. Incision was now made through the wall of the gall-bladder and about a dozen of the stones were removed for the purpose of making room for the button, which was then slipped in and the suture tied around the projecting cylinder. The cylinders were then adjusted, the one within the other, and the buttons were pressed together, making a beautiful, clean, and firm coaptation. The mass was then carefully returned to the abdominal cavity and the incision closed.

The patient made a very smooth recovery, the after-treatment being about the same as that following an abdominal section for ovarian or uterine tumor. The bowels were moved on the second day, and after that every day. The temperature did not rise much above the normal. On the morning of the eighth day there was considerable intestinal pain preceding a large bowel movement which contained the gall-stones and the button. The stones were collected and counted, to the number of 527, when the nurse became tired and ceased counting. But there were not many more. The button was in good condition except that it was darkened in color. It held within the grasp of the spring cups the portion of intestine and gall-bladder which had been separated by the pressure. There was very little odor, showing that the separation had resulted from pressure atrophy simply, and not from sloughing or gangrene. Great care was observed with regard to the diet and the movement of the bowels for a number of days following the discharge of the button, but the patient made such steady progress that she was soon on full diet. The sutures were removed from the abdominal incision on the ninth day, and the patient sat up on the sixteenth day. The subsequent history of the case has been most satisfactory.

Case II.—In November, 1893, Mr. J. H. E., a citizen of a neighboring State, was sent to this city to consult me. When I saw him at his hotel he was suffering great pain in the hepatic region and appeared to be in the midst of an attack of biliary colic. Repeated doses of morphia, hypodermically administered, were necessary before relief was obtained. The following history was then elicited. He was aged 47 years, short of stature, was strong and muscular, and

weighed 215 pounds. He had always enjoyed robust health until a few years ago, when he began to suffer from periodical headaches. These continued to grow more severe and more frequent, and one year ago began to be associated with slight pain in the hepatic region. The pain in the hepatic region at first disappeared with the decline of the headaches, but within a few months after the first attack there was more or less continuous pain in that region, with at times periods of exacerbation of great severity, so that relief could only be obtained through repeated doses of morphia. The pain was radiating in character, extending towards the epigastrium, umbilicus, and entire right side of abdomen; also throughout the chest and towards the right shoulder. The attacks were attended with slight jaundice only, and the stools were not clay-colored. On inquiry into the family history it was learned that the mother of the patient had died at seventy from "liver disease," after long years of suffering similar to that which was now affecting the son. Obstruction in the biliary ducts was at once suspected, but corroborating physical signs were unavailable, except marked tenderness directly over the region of the gall-bladder. The patient was importunate for relief, even by surgical means, if that were deemed necessary; but as the gall-bladder did not appear to be enlarged and the subject was a rather unpromising one for surgical manipulation, because of thick abdominal walls and small gall-bladder, and further, because medical remedies had not been given a fair trial, I requested the association of eminent medical council in the case. Accordingly, Dr. S. Solis-Cohen was requested to take at least temporary charge of the patient. Dr. Cohen corroborated the diagnosis of gall-stone obstructing the cystic duct, and expressed the belief that nothing short of surgical means would effect a cure. However, it was determined that a course of medication should be pursued under his direction. This was continued during the next few months, but without benefit. On the contrary, the attacks continued to grow more severe and the patient was evidently on the decline, having lost during this time thirty-five pounds in weight. But I was sorry, when I was called upon to operate, that he had not been further reduced in flesh, for the abdominal wall was still very thick and the gall-bladder apparently not enlarged.

Operation, March 31, 1894. Assisted by Drs. Theo. A. Erck, M. S. Erdman, and William. H. Wells. Dr. Cohen was present. An incision, begun immediately over the normal location of the gall-bladder and extending downward three inches through an abdominal wall which was found to be even thicker than was anticipated,—fully four inches,—exposed the edge of the liver with a little bit of a gall-bladder just peeping from under its edge. I was greatly disappointed at the

small size of the gall-bladder, for I realized that it would be a difficult matter to make the attachment with the button at the bottom of this deep wound through the thick and rigid abdominal walls, for it would be impossible to bring the bladder to the surface; and further examination showed that it was necessary at least to open the gall-bladder, as two stones were found blocking the entrance to the cystic duct. To make matters worse, if possible, the omentum and mesentery were also loaded with fat, so that the intestines were hidden entirely out of sight. I increased the incision to four inches and tried to find and bring up a knuckle of duodenum, but failed after considerable manipulation to even bring into view any portion of the small intestine. I then decided to try to make the attachment to the colon at its nearest point to the liver,—namely, at the beginning of the transverse colon. The running suture was placed, the incision made, and the smallest-sized button adjusted within the intestine. If this step was difficult, the next, that of adjusting the button in the small gall-bladder, was stupendous. After adjusting the running thread, the gall-bladder incision showed that the difficulties would be even greater than anticipated, for its mucous coat was greatly hypertrophied, rendering the cavity almost too small to receive the button. But it was finally forced in and the ligature tied around its projecting cylinder. Now came the most difficult task of all, the clasping of the two buttons together. If you will recall that it is necessary to grasp the two buttons so as to get force enough to press them together; that there was no free gall-bladder to grasp; that I was making the manipulation with already worn-out fingers, and among slippery tissues at the bottom of the thick abdominal walls, with the diaphragm rising and falling violently because the patient was taking ether badly; and that just when I thought I was about to succeed in effecting the junction the button slipped out of the gall-bladder, you will be able to imagine my mental state. The outlook was so extremely unfavorable that I almost despaired of success. I next considered the feasibility of closing the intestinal incision and endeavoring to stitch the gall-bladder to the abdominal wall and draining externally, but this was equally impracticable, for I had not sufficient gall-bladder wall to stitch. I then concluded to make another attempt. This time I had torn and bruised edges to work with, but I again inserted the button and drew the ragged edges of the gall-bladder around the cylinder, and then made a final endeavor to clasp the two cylinders; ultimately I was rewarded by hearing the click of the spring upon the grooves within! Never did an exhausted and defeated army hear the click of the sabres of the hoped-for reinforcement with more joy than I heard the embrace of the opposite springs of those buttons as they

pressed the intestinal wall against that of the gall-bladder and held the one in close contact with the other! And, thanks to the beautiful mechanism of the Murphy button, the adjustment was complete. The incision was then closed and the patient returned to bed, not more exhausted from the prolonged manipulation and rather rough handling of the gall-bladder than I was from the mental and physical strain in the doing of it.

The after operative history of this case was by no means as smooth as that of the first one. There were considerable pain and elevation of temperature during the following sixteen days, at the end of which time the button and the two gall-stones were passed. After this the progress towards recovery was gradual and certain, the patient returning to his home four weeks after the operation.

The later result has more than justified the undertaking of the operation in even this unpromising case, for not only has the patient been saved from a slow, torturing death, like that of his unfortunate mother, but he has been restored to perfect health. The pain and headaches have been absent since the recovery.

These two cases illustrate the extremes of simplicity and difficulty in the performance of this major operation, which latter, under the most favorable circumstances, it should always be considered. There is one point of practical importance I wish especially to emphasize, namely, that the post-operative history of the second case has been equally satisfactory with that of the first, showing that, at least, in this instance, the junction with the colon instead of with the duodenum was not material. This fact is significant, because in another case presenting the same manipulative obstacles I would not spend the time which was lost in the endeavor to bring up a portion of the small intestine, but would at once proceed to make the attachment to the colon, especially if the common duct were patulous.[1]

[1] Nearly two years have now elapsed since the performance of the operations just described. This fact renders the late publication of the paper of far more value because of the opportunity which it affords of recording the condition of the patients a long time after operation. Both cases have remained in perfect health; there has been no return whatever of the old symptoms, nor have there been any new ones which might be ascribed to the formation of the new biliary duct. Case I has recently passed safely through an accouchement at full term, and states that the pregnancy and delivery were the easiest she ever had. She has been restored from an emaciated, sallow-skinned invalidism to robust, enduring health; most of all, she rejoices in the absence of the headaches.

Case II has likewise been free from the headaches as well as from the other symptoms.

RACIAL DEGENERACY IN AMERICA; GOITRE AND DWARFING.

By Albert S. Ashmead, M.D.,

New York.

Racial degeneracy may be defined as non-resistance to influences inimical to the existence of the race. The individual who cannot resist the disease-producing causes which are afloat, whether they be germs, climate, or whatever their nature, is physically degenerate. If the subject has lost all power of resisting the immoral tendencies which threaten the race, he is morally degenerate. A cretin is intellectually degenerate. A dwarf is a degenerate, because he has lost the faculty of growth.

Goitre is a disease of racial degeneracy; it will only be found in those races in whom development has come to a stand-still, as the mixed races of South and Central America, the Cagots, some inferior layers of the Scotch, the mixed mulatto race, and the degenerate Indians of America, etc.

Leprous races are degenerate, as the Eta race of Japan, some Central and South American races; the low caste Hindoos; the poorer element of the Norwegian people. These diseases—leprosy, goitre, dwarfing, cretinism—are evidences of the dying out of a race.

Hirsch says, Endemic goitre and cretinism exist from the basin of the Rio Grande del Norte (New Mexico) extending along the Cordilleras through Mexico, Central America, and South America as far as Chili. In the mountains of Mexico, Colima, western slope of Cordilleras, and in Tobasco and Chiapas, thence into Gualemita in the tierra templada of which there are whole villages afflicted with goitre, and thence outward through San Salvador, Nicaragua, and Costa Rica. Paraguay has goitre in its river basins. It exists also in the Southern and Central provinces of Brazil,—as Rio Grande, Santa Caterina, San Paulo, Goyaz (both the west and east slopes of Sierra Geral in Natividad Conçeicao, Arrayas, Villa-Boa, and upper basin of Parahyba and Minas Geraes, districts of Barbacena, Ouro-Preto, Sabara, and others): all over the country, except coast territory and alluvial plains. Rendu, St. Hilaire, Castlenan, and Tschudi say cretinism does not occur endemically anywhere in Brazil. Dr. Faure, who lived for a long time in central province (head-quarters of goitre), says he never saw but one case of cretinism.

Cretinism is endemic in New Granada, which is also the chief seat of goitre. Both diseases occur throughout almost the whole valley of the Rio Magdalena from Neyva in the tierra fria downward through

Santa Fé de Bogota, Maraquita, Honda, and other districts as far as the plain of Pinto, at the confluence of the Cauca and Magdalena. Neither in the lower basin of the latter river, nor in the parallel valley of the Cauca, nor in the mountainous province of Antioquia, between the two, do goitre and cretinism occur, but we again come upon them, in endemic form, in the basins of the Meli and Apure. Foote found hardly a person in Maraquita not subject to goitre more or less. Magdalena Valley has also cretins. In Venezuela goitre occurs on the plain between Caracas and Valencia (St. Lager) and in mountain range from Barquicimeto, as far as Pamplona and frontier of New Granada. The basin of Orinoco is free of goitre (Humboldt). No mention of goitre and cretinism in Guiana. From New Granada the zone runs down the Cordilleras through Quito, Cuenca and Loxa to Cuxamarca, Huamacucho, Huanuco, and Pasco, in the valley of Hualoga, through central valleys of Peru, particularly valleys of Libertad and Ayacucho. Cretinism is not indigenous there (Archibald Smith). Tschudi makes no mention of it. In Bolivia the chief seats are the provinces of Yungas and Ayopaya. In Chili, endemic in San Felipe, Santiago, and other places. In the states of the Argentine Republic goitre finds its evident distribution in the provinces of Salta, Jujuy, Tucuman, Los Lueles, La Rioja (particularly Famatina Valley), and Mendoza, in some districts of the provinces of Cordova and San Luis, and many places in the states of Corrientes and Entre Rios. Mantegazza says cretins occur with goitre in Salta.

Gache[1] says among the endemics of the Argentine Republic goitre is one of the most frequent.

The cause of this affection has been sought in the geologic nature of the different soils, but this idea had to be given up, because it was found to develop on soils of a variety of nature. It has been searched for, with better reason, in the chemical composition of the waters, and the studies made in that direction have not been satisfactory either.

It has been attributed to the want of oxygen, of iodine, and bromine in the water; the waters in which magnesia represents 25 per cent. of the total of the salts have been thought of; fluoride of lime has been also thought of as a cause, but we can only consider all these opinions as individual appreciations of isolated facts establishing contradictory results, since the same disease has been discovered in conditions essentially different.

Melted snow waters, says Boussingault,[2] are considered by some to be a cause of goitre for such persons as are obliged to use them. As

[1] Climatologie Médicale, Buenos Airès, 1895, par le Dr. Samuel Gache, translated by A. S. Ashmead.

[2] Voyages scientifiques aux Andes equatoriales, 1849.

a matter of fact, in New Granada, this disease is observed in the countries whose inhabitants drink, as a rule, this kind of water, also in the city of Mariquita, situated on the bank of Guali, which issues from the snowy peaks of Ruiz, and in the city of Ibague, on the banks of the Combeyma; but *the largest number of the localities in which the goitre is endemic is very far from the snows, and the waters which their inhabitants drink are not melted snow.*

It has been also supposed that spring waters might be the cause of the disease, on account of their low temperature and of the saline matters which they contain.

The same author, referring to the observations made in the country quoted, says that he knows only two localities in which the inhabitants drink exclusively spring water; these are,—Nemocon, in the province of Bogota, which possesses an abundant source, issuing from a sandy rock, and the city of Socorro, whose inhabitants drink a spring water spouting from calcareous rock.

In this last country goitre is very common, and it becomes very voluminous, while not one is seen in Nemocon.

We are consequently in the presence of two facts. The waters which run across insoluble rocks of quartz do not exercise any action upon the thyroid body, and the persons who drink the water issuing from calcareous rock, partly soluble on account of the carbonic acid which it contains, see the same body become hypertrophied, and attain a very great development. Hence the problem whether the geologic nature of the soils which waters traverse has or has not an influence upon that organ.

This problem has been resolved by numerous authors, who have declared, after serious studies, that, with the exception of the calcareous rocks, the nature of the soil does not seem to have any influence on the frequency of goitre, and that if that influence really exists, it is only exercised in the countries of secondary calcareous rocks, and in the majority of the countries where goitre is endemic there are no such rocks. The theory according to which the water issuing from snow, or descending from high mountains produces goitre, and that it loses this power as it flows away from its source and absorbs the air which it needs, is upset by this fact, that in low countries in which the people make no use of mountain water, goitre is, nevertheless, steady and even very common. Important centres might be mentioned where the water used from its origin must contain very little air, and in which you meet only exceptionally a goitrous person.

Boussingault reports that these last facts have been proved in places peopled by Indians, a race which, in all America, appears to

be immune of that affection; at any rate, he adds, "I have never seen one of pure race having a goitre. In Coloya, in Piedras, and on the banks of the Combeyma that tumor is very frequent among the negroes, the mulattos, the Mètis, but the Indians are not subject to it, although they make use of the same waters. Before me, a celebrated traveller had made the same observation. The indigenies with bronzed skin enjoy, says Humboldt, a physical advantage due without doubt to the simplicity of the mode of life of their ancestors during thousands of years. I have never seen an Indian hunchbacked, and I have encountered rarely in them those who were squint-eyed, lame, or maimed. In the countries where the inhabitants are exposed to goitre, the Indians are not attacked by this disease, which one observes only rarely in the Mètis."

According to Bordier, Indians are in the Andes subject to goitre; the Mètis less so; after the Mètis come the whites, and the negroes bring up the rear. As may be seen, these data are different from the preceding.

The local observation accords with that of Bordier. It has been said that the Quechua Indians of Jujuy are exempt from it, but the truth is that in that province the Indians are attacked by the affection, as we shall see hereafter.

The studies of Grange have in their time thrown light on this obscure point in the etiology of the endemic of which we speak. They have pointed out that in all the valleys where it reigns, the drinkable waters, whatever be the earth upon which they flow, contain a large quantity of chlorides, of sulphides, and carbonate of magnesia. From his point of view, it is the absence of lime in the waters, rich in magnesia, which causes goitre. He proposes to pass these polluted waters through filters or deposits filled with carbonate of lime or a very thin layer of lime.

The chemical study of the earth of the regions in which goitre is rampant, according to certain authors, does not give either, it seems, much foundation to the theory which seeks in the elements that compose them the origin of the disease.

Could one not base a suspicion on some action exercised by a special element belonging to the earths on the waters over which they pass, which might contribute to explain the genesis of this disease? A bacteriological examination of these earths might clear up the question by determining the kind of germ which acts in these cases.

After having repelled the theories which have been put forth to establish more or less scientifically the etiology we seek, and having recognized with Baillarger that there exists a special agent, unique, always the same, which affects the organisms and impresses upon

them a mark of degeneration always identical, of which the first stage is goitre, and the last cretinism, one ought to find this agent in order to prove the opinion of Arnold as to the question whether the cause resides in some of the known elements of the waters or in some other which is not known.

One may, perhaps, according to this author, consider parasitism, but it will be necessary to recognize the bacterium of goitre.

This has indeed happened.

A short time after the predictions of the French savant, Drs. Lustig and Carle published the results of some studies which they had made of the waters of the valley of Aoste, where goitre is endemic, and they have established the following conclusions:

(1) All the waters examined which in places visited served for drinking or for domestic uses to the inhabitants affected by goitre are very rich in bacteria.

(2) Constant presence in varying quantity of a bacillus, which liquefies gelatin, and which has special morphological and biological characters.

(3) The experiments made upon horses and dogs absolutely healthy, by making them drink that water in a district exempt of goitre, have demonstrated to us that the water has incontestable power to produce an augmentation of the thyroid gland.

(4) It is not yet demonstrated that the elimination of the microbes takes away from that water the property engendering goitre.

The etiology of goitre finds itself thus well established, and the prevision of Arnold is confirmed by the application of the microbian theory.

The goitrous bacterium is found in the water, but it is necessary to search for its origin in order to establish definitely the importance that the soil and the water may have in that complicated etiology.

Is it not in the soil, that germinates the marsh hematozoin?

It is reasonable to suppose that the bacterium takes birth in the soil, if we base ourselves on the following fact: that the waters causing goitre have not that virtue throughout the extent of their course, and one can determine the commencement and the end of their action.

But it is necessary to recur to the experimental demonstration.

Formerly, great etiological importance was attached in the first place to heredity, to genitality, altitude, etc.

It is very possible that all these circumstances contribute to produce the disease by preparing the soil that the bacterium will presently fecundate; but, above all, it is necessary to recognize the direct action of the latter, whatever may be its starting-point.

Bordier, who has studied specially these questions of medical geography, says that goitre is found especially in the mountains in cold countries, as in hot countries the essential condition was a *sojourn in the mountains.*

At the last Congress of the French Association for the Advancement of the Sciences (Session of Pau, September 21, 1892), Chopinet, of Léronville, has expounded his own ideas on the subject of goitre and cretinism, and has presented the following conclusions:

(1) It is in the bottom of the valleys in the neighborhood of brooks that are observed almost exclusively these two symptoms of the same disease.

(2) The endemic increases continually in intensity from the beginning of the valleys to the last contreforts of the chain (Pyrenées). Its maximum is in the broadest parts of the valleys.

(3) The endemic tends to become attenuated in a general way; it has even disappeared in several localities formerly very much affected. It is not to a change in the nature of the drinking waters that one can attribute this recoil of the disease, but rather to the progress of general comfort and of general hygiene.

(4) It is not only the slatey limestone which, in the geologic constitution of the soil, plays a part incontestably obnoxious.

(5) Very numerous causes of goitre and of cretinism are, for the Pyrenées especially, humidity and the uncleanness of the houses, the defect of aeration and of solar light, the bad alimentation.

(6) In the Pyrenées there is considered only one doctrine to which the facts give not the lie. It is the doctrine that goitre has a great variety of causes.

At the same congress, Gils connected the origin of the disease with micro-organisms, saying that since it had been able to show itself momentarily and then disappear in countries where it was unknown, it is logical to attribute its cause to a living principle susceptible of acquiring or of losing its poisonous character; in consequence, goitre would enter into the general category of diseases produced by micro-organisms, and could, under certain influences, extend and propagate themselves by their invasion.

The question of soil or of composition of waters in countries where goitre rages, would be reduced, according to Gils, to a question of medium of culture, proper to the development of the micro-organism, and in these conditions the affection does not appear fatally inherent to a region susceptible of being modified only by a geologic revolution, but rather an affection of medium of which hygiene should get the better. The microbian theory applied to the etiology of goitre gains ground, and thus are confirmed the predictions of Arnold.

In the Argentine Republic we see goitre develop itself as quickly in the mountainous countries, such as the provinces of Mendoza, San Juan, Tucuman, Salta, and Jujuy, as in Corrientes, remarkable for its plains covered with an abundant vegetation.

If it prevails in the first because the territory is mountainous, what reason can be proposed to justify its presence in the other which is far, very far from the mountains?

We cannot draw an argument from the fact that the small number of cases which appear at Corrientes is a proof of the influence of altitude, because, if to-day the number of persons attacked is relatively limited, on the other hand, that affection has made formerly numerous victims in the same place.

There were found at other times a large number of goitrous in some little villages of Corrientes, situated on the river Uruguay, who seemed to have contracted the disease by drinking well water instead of the water of the river, which is infinitely superior.

The elimination of the disease in that province is evident, and it is not possible to attribute it to any modifications which might have been produced in the general conditions of the soil, in the vegetation or in the water.

Has some unknown focus been destroyed? It appears to us more acceptable to admit the action of the crossing of races, which takes place in the countries of the littoral, which strangers prefer, carrying with their blood new forces, better dispositions for the struggle for life, and even a greater vigor in resisting the action of the climate and special vicissitudes of each locality.

How is it that San Juan, which is surrounded by the Andes, as well as Mendoza, has freed itself of the goitre? How is it that San Luis, in the same condition, is not subject, while Mendoza pays large tribute to it?

The reason is that there is something more than influence of altitude, in these facts.

It is no longer possible to point to defect of aeration of the water, because when it comes to be consumed it has run through a space of several hundred kilometres.

The most favorable condition is, without doubt, the sojourn in a mountainous region; the different circumstances, and the climatic agents are the elements which enter into that condition. One must consider the waters which traverse the soils of different constitution, which have in dissolution or in suspension the principles which they have taken from them and which it behooves us to study in detail.

In our country, goitre does not appear only in mountainous

regions, but it appears even in localities which are far removed from the mountains, and for which it is not necessary to take into account the altitude, which is insignificant.

That condition is therefore not primordial for the production of goitre, although it exercises some action, and although the endemic is frequently found in mountainous districts.

Let us see now its frequency in the Argentine Republic.

At Mendoza cases are numerous, principally among women.

In 1879, there were in the city 245 women and 65 men attacked with goitre.

There exists in that province, at a short distance from the capital, a canton called San Vicente, where this disease is so common that among the inhabitants of the other villages the name of Vicentino is synonymous of goitrous for the multitude. Whoever has seen this land must remember the enormous number of these unfortunates.

One meets them in all sections of that province, and, according to Dr. A. Lemos, the proportion varies between 8 in 100 inhabitants, as at San Vicente, and 1 in 100 at Lujan, while San Martin and the capital represent an average of 3 in 100.

The proportion is, perhaps, exaggerated as to the last place, but it is not so for the other districts named.

Thus, Mendoza would find itself in conditions similar to those of several departments of France, in which the proportion of goitrous is 7.3 per 100 inhabitants, while in others it is 3 and 1 per 100. It has been calculated that France contains 500,000 persons affected by this deformity.

In San Juan the disease disappears with such rapidity that it is rare to meet a goitrous. The same is an exceptional occurrence at San Luis.

The contrast presented by the provinces just mentioned is remarkable, the endemic is very frequent at Mendoza, almost nothing in another province, in a third nothing at all. However, in each we observe the influence of altitude, vegetation, the abundant waters, and even the absence of the foreign element which, by its crossing with the national element, would give, as a result, a modification of type, which would be favorable to the disappearance of the disease, because it would produce subjects less apt to contract it.

On the other hand, in the Argentine provinces of the north, goitre takes alarming proportions. We find it at Tucuman, especially in the capital (in the south), and in the environs, Tafi, Javier, and Yerba Buena; it is observed also frequently at Lules, Famailla, Monteros, as well as at Francas, San Pedro de Colalao, Graneros, Chichigasta, and Rio Chico. In the zone corresponding with the Calchaquies Valleys, the disease has not been observed.

That of Salta counts some regions in which the affection constitutes a veritable scourge. The strongest contingent is furnished by the departments of the capital, Cerrillos, Chicoana, Caldera, Rosario de Lerma, Guachipas, and Campo Santo,—that is to say, it is the country which forms the valley of Lerma, which pays the most considerable tribute to the endemic. There exist some villages in which one-half of the inhabitants are attacked, as at Calderilla, for example; Guemes and Santa Rosa are very much stricken. The city presents numerous cases disseminated among all social classes. According to Dr. Nino, that malady can be traced back in that city to an epoch very remote; it is, on the contrary, of recent date, if one compares it to its ancientness in the rest of the district. In his opinion, it is to be explained by the modifications undergone by the waters of the river Arias, which furnishes the drinking water of the inhabitants.

According to Dr. Nino,[1] this river, in consequence of ancient floods, has augmented the bulk of its waters by the addition of those of Silleta. Since that epoch, goitre has made its appearance in the capital. There is no doubt on this head, since in the epidemic of cholera, in 1886 and 1887, it has been established that as long as the inhabitants made use of boiled water, the goitres have diminished in volume, at the same time intermittent fever ceased its invasions.

We readily conclude from this fact that the second of these rivers contains some principle or morbid germ, which, by its action on the organisms, produces the endemic. That supposition is corroborated by the observation that the district of Silleta is that which furnishes the most marked cases of goitre. Therefore we must study the composition of the waters of the last river and make bacteriological examination of them. If the fact observed is evident, as we suppose, and if it is true that before the junction of the waters of these two rivers the malady in question was not known in the city of Salta, it is urgent to make researches in the waters of the first and in the soils which it traverses for the cause of the evil.

Bacteriology must make this clear. It alone can decide in the last instance, by a reasoning based on the practical demonstration, the good foundation of these opinions, which, in our eyes, have a very serious character.

In the province of Jujuy goitre is observed in the following departments: San Pedro, Perico, the southerly part of Valle Grande, and Ledesma; this last is most stricken. It follows that the endemic reigns in the villages situated in proximity to the river Grande. There is an evident tendency to a diminution.

[1] Francisco R. Nino, Geografic Médica del bócio en la Republica Argentina, tésis, Buenos Airès, 1890.

In the province of Catamarca the goitrous region comprises the capital, Pedra Blanca, and Poman. In this last department the river Belen disappears; the two others are watered by the river of the Valle, which ends at Capallan.

Andalgala and Belen are likewise very much visited by the disease.

Dr. F. de la Vega believes that the consanguinity very frequently found in that province is an important element which acts on the etiology of goitre. The proportion between goitrous men and women is one for the first against ten for the second.

In females who have not had children, the march of the affection is slow, while it is very rapid in multipara.

In the south of the valley of Catamarca, on the banks of the great river Salinas, there have been discovered in several *estancias* (stations) some wells whose slightly saline waters have the property to destroy the hypertrophy of the thyroid gland, after a use of some months, when the tumor was not very much developed.

It is supposed that these waters contain iodine and bromine, but no serious analysis practised has established the presence of these metalloids.

In the province of La Rioja it has rather frequently been observed in a little village of the department of Chilecito, in the bottom of a valley where the waters are calcareous, like the greater part of those of the region.

There exist in this district whole families of goitrous, who marry with other goitrous, and whose children are attacked with the same disease. It is necessary to add that some families who have come to live in this country have remained exempt, as well as their children. This would constitute an argument in favor of heredity, if facts well proved did not show that individuals exempt of all hereditary disposition are victims of the endemic. This is a general observation.

The diminution of goitre when the diseased is removed from the endemic point, and its augmentation when he comes back to it, have been the subject of serious researches which have established this fact.

The following is a table of the frequency of goitre in the Argentine Republic, according to the data of the census of 1869:

Provinces.	Elevation above Sea-Level.	Number of Goitrous.
	Feet.	
Buenos Ayres	20	38
Santa Fé	37	18
Entre Rios	78	69
Corrientes	77	244
Cordoba	439	135
Santiago del Estero	214	47
San Luis	759	58
Mendoza	805	1712
San Juan	643	64
La Rioja	505	136
Catamarca	572	222
Tucuman	465	605
Salta	1202	1150
Jujuy	1260	535

In the total of goitrous, 1701 are male and 3500 are female.

Such are the data on which are based our views; but it is necessary to observe that goitre tends to disappear in several provinces, just as it maintains itself in others.

At Tucuman, where formerly it was accompanied with cretinism, and where the population was obliged to abandon its position on the river *Pueblo Viejo* to adopt that which it occupies to day, its diminution is sensible.

In Jujuy it disappears likewise, and this fact is due in great part to the epidemics of small-pox which raged from time to time among the Indians, and which killed a great number. Besides, among the causes which helped to obtain this good result, it is necessary to mention the great care that the people take of the cleanliness of their bodies, the diffusion of hygienic knowledge which forestalls diseases, and especially we have to name the crossing of the population with the strangers coming from different regions.

The observations which would be needed to fix the time necessary for the development of goitre are wanting in our country. We know that some authorities of the Old World give it as fifteen days, and that a residence in the country subject to the endemic may produce it in a few weeks, especially in a new-comer.

On the subject of its frequency, Bordier cites the following facts: At Clermont, in 1851, in 5635 soldiers, there have been 180 goitrous; in 1874, at St. Etienne, in 1400 men, 280 contracted it; at Colmar, in 1864, in 600 individuals, 107 were attacked; and at Annecy in 682 persons, there were 128.

We shall now offer some considerations on the state which generally accompanies goitre,—cretinism; a veritable degeneration of the species, the last degree to which abut the consequences of the endemic.

Looked at from the etiological point of view, that degeneration has as principal factors climate, alimentation, diseases. We ought likewise to take into account the social causes, consanguineous marriages, the absence of crossing with individuals of other races, which crossing might produce renewal of type and the appearance of other aptitudes.

All these causes are too well known and their effects too well determined for us to expose them in detail. We must remember that the climates act differently on the organism, impressing it more often in an unfavorable way, and predisposing it to disease.

The climate of the northern part of the Argentine Republic is sometimes prejudicial to the stranger, and the *chucho* invades it. If we have some localities like Rosario de la Frontera and Puente del Inca, which are very favorable for the cure of rheumatism; Cosquin, Mendoza, and Lujan (Lujan, province of Buenos Ayres), special residences of consumptives; on the other hand, the city of Buenos Ayres offers a field very vast for these affections, which attack a great number of inhabitants, not forgetting typhoid fever, diphtheria, and other diseases which are rooted there.

We have said that goitre and cretinism are close ties, and that the second is a chronological state which obeys the acting causes, perpetuating their disastrous effects, transmitted by heredity, and of which the first of these diseases is the beginning.

The relation is so evident that it has not escaped the common observation.

The province of Mendoza, with its enormous quantity of goitrous, counts a rather considerable number of cretins, particularly in San Vicente, where the latter abound extraordinarily.

If, in all the regions of the country where goitre reigns, one observes all its forms, it is the benign which is most common.

It is absolutely impossible to offer exact information; the census of 1869 is the last which was taken, and it is easy to understand that to-day a fixed base to appreciate the fact is lacking. However, we have tried to offer a general view of the subject by jotting down the data we have been able to gather.

As far as animals are concerned, we are able to say that at Tucuman, dogs and horses have been seen with hypertrophy of the thyroid body.

In closing, we may declare that in numerous localities of the Argentine Republic goitre diminishes, and this can only be attributed to the crossing of the races. The infusion of a novel element into a population not yet mixed, must certainly produce a stronger type, more resistant and with favorable conditions, to struggle against the diseases.

In Bolivia goitre is very common. The eastern region of this country is the part most subject to the endemic, and especially between the Rio Grande and Santa Cruz. In the south it is Tarija which is most attacked, to such a degree that in the high countries which occupy a considerable extent of the most populous zone, like Potosi, Sucre, La Paz, Cochabamba, and others, the word Tarijino is synonymous with goitrous. The same thing happens, as we have seen among us, with the goitrous of San Vicente (Mendoza), who are called Vicentenos.

All the valleys are centres of production of the endemic. On the high planes or plateaux it is not known; however, the inhabitants contract it when they descend into the lowlands.

The Bolivians attribute the origin of the disease to a tree called *Alizo*, which grows on the banks of the rivers. Among the Indians and the lower classes it is a general belief that if, at the moment when they stoop to drink from these rivers the tree speaks to them, then they are doomed to become goitrous.

It has been observed that in the city of Sucre, where formerly goitre did not exist, it is found to-day. Its appearance has coincided with a particular state of the conduits of the earth by which the flowing waters arrive; these conduits are dirty and contain a deposit of organic matter.

In Peru, in the hollow of Vilcamayo, goitre is endemic, and cretinism accompanies it mostly.

In Paraguay it is likewise frequent, especially at Villa Rica; at Asuncion one observes it among all social classes, but it is to be noted that probably these goitrous come from the country.

In Mexico it exists in the villages of Santiago, Tuxtla, Huichapan, Huejutla, Michoacan, Guerrero, and Sinaloa.

Dr. W. Oliver Taylor, of Princeton (Ontario, Canada), writes me, "I have treated during the past eight years 217 cases of goitre. I find on examining my notes of these cases that some few have moved from this locality, a number have died, and a small proportion have only been under close observation for two or three months. The rest—181 cases—I have notes of, for a period varying from three or four months to seven years. Some of these cases I only see three or four times a year, the rest regularly at least monthly. The ages ranged from one case at 1 year to one case at 75 years, but fully 85 per cent. have occurred between the ages of 13 and 48 years. The sex: 95 per cent. were females, the rest males. The duration of the disease before treatment, three to twelve months, in 70 per cent., and from one to twenty-five years in 30 per cent.

"Quite a number of these cases came under my care during or

following pregnancy. The most intractable cases,—at or following the climacteric. Those cases of long duration were of the follicular or cystic form.

"Thirteen of these cases had exophthalmus; two of these died of malignant disease,—one of cancer of the uterus and one cancer of the breast; one died rather suddenly,—mitral valves badly inflamed. The other ten are in fair or poor health. All require more or less attention to the heart.

"All the cases were white.

"All were natives of Canada excepting thirty-seven. Of these thirty-seven, nine were born in the United States, one in Norway, two in Germany, and twenty-five in Great Britain.

"The 217 cases occurred in 159 families. The largest number in one single family, three out of eleven daughters.

"Quite 20 per cent. suffer from severe headaches, usually lateral. Two-thirds are anemic. One lateral lobe is usually most prominent, but both generally involved.

"In the 159 families are three dwarfs, three deaf-mutes, and three cases of myxedema. There are no cretins.

"A few children born of goitrous parents are as bright and clear mentally as those of non-goitrous; the majority have not the same mental calibre as those whose parents are free of goitre.

"Still, it is only fair to say that two out of the three dwarfs had non-goitrous mothers at birth. Goitre developed in one mother subsequently, and in a sister of the other dwarf. One of the dwarfs is unusually bright mentally. The others are not so.

"We have a rather level or gently rolling country,—a few rather steep hills,—but not a mountainous country.

"This is not the ordinary experience of most observers, but the soil is highly impregnated with lime salts, and the drinking-water is decidedly hard.

"This has been so important a factor in the treatment of the disease that for the past four years I have insisted on the exclusive use of distilled water. Without this I have found treatment very unsatisfactory, even in the mild cases.

"*Treatment.*—Ninety-three cases have been treated by iodine alone; nineteen cases by evacuation of contents and injection of iron; four cases partially evacuated and injected with carbolic acid; thirty-one cases with injection of ergot or ergotine; twenty-five cases with desiccated thyroids, and the rest were treated with local applications of hydrarg. ox. rub. or hydrarg. biniodidi.

"Many of my cases have been improved by treatment rather than cured.

A Cherokee Goitrous Indian.

A Honduras Dwarf.

"I used the seton in five cases. My experience leads me to the conclusion that no one form of treatment is applicable to all cases of goitre. Good judgment is essential in dealing with these cases, and they must be selected. The seton gave me sleepless nights and anxious days,—fortunately no fatal results.

"The doses of thyroids I used are larger than those of most physicians who have prescribed it. I used the tablets, not the powder.

"Some thyroids easily undergo decomposition, and the relative strength of preparations of different houses are not the same; but I must say my patients have been able to take the large doses without difficulty, excepting in a few cases."

Dr. J. P. West, of Bellaire, O., in the October number of the UNIVERSITY MEDICAL MAGAZINE mentions eight rachitic dwarfs in the Ohio Valley, one, a mulatto, three, children of wealthy Scotch people.[1]

Dr. George Dock, in an article entitled, "Goitre in Michigan," says that the disease is found in all parts of the latter State; it is most prevalent in the northern part, the two peninsulas, and the proportion of the lower peninsula is very considerable. Fifty-two reporters give a total of 477 cases, not including the cases in the copper regions. In a large number of cases the goitre affects natives of Michigan, usually of the districts, but the disease is frequent also among foreigners.

Dr. Munson, United States army, has investigated the question of goitre in certain American tribes. In 77,173 Indians residing on reservations, he found 1823 cases of goitre, or about 2.36 per cent. That would make for the whole Indian population on reservations about 1.23 per cent. He found it most prevalent in the Southern part of Montana. He believes that there is a racial predisposition to goitre in the Indians (to-day, I suppose he means) who live a rather unnatural life in the reservations, because it is almost unknown among the white settlers. The disease, according to Dr. Munson, is evidently caused by unsanitary surroundings, depressing constitutional conditions, and an improper because excessive nitrogenous diet.

Professor Starr, of the University of Chicago (Department of Anthropology), has had the kindness of sending me this photograph of a full-blooded Cherokee goitrous Indian. I think I had better give Professor Starr's letter in extenso: "I send you with this a picture

[1] It is not uncommon, he says, to see a square-built individual below the average height, with a large, square head, prominent forehead, and a small face, with bent or bowed legs and arms, and probably flat feet. Examination of a number of such cases invariably shows large, rough joints, and peculiarly shaped chests. These are cases that it is natural to infer recovered, except the deformities, without treatment. It is a natural inference that others died from the severity of the disease. . . . It is a still more natural inference that there were others yet who suffered to a lesser degree, and who recovered entirely and do not attract attention.

diseases proceeding from osseous innutrition. There is nothing racial, still less pithecoid, in any of these traits. They flow from obvious and present conditions.[1]

This is also true of those small, intercalated bones which develop or persist in various sutures of the cranium and face, the epactal bone, the ossa Wormiana, and the recently observed *ossicula mentalia* of Mies.[2] The presence of these is to be understood as an evidence of deficient osteogenetic power, not its excess, as is sometimes stated. They are very generally associated with other signs of defective bone structure, as bifid sternum, perforation of the fossa olecrani, carious denture, and the like. They are most numerous in pathologic cases. Holden found over 100 Wormian bones in the skull of a hydrocephalic infant,[3] and Hyrtl over 300 in that of a cretin.[4] They are formed from multiple secondary centres of ossification because the primary centres were too feeble to supply the needs of the system.

The epactal is really a large Wormian bone, and the attempt to assign it an ethnic value under the name of *os Incæ*, made by von Tschudi, fails upon examination. It is found, with equal or greater frequency, among the ancient Arizonians of the Salt River Valley, and Dr. Washington Matthews has inferred therefrom some closer relationship between these two peoples than that of race.[5] But the simpler and more likely explanation is that in both instances we have a people subsisting upon a similar inadequate or at least non-osteoplastic alimentation, leading in each to similar semipathological variations from the norm.

This is well illustrated in the remarkable frequency of pathological exostoses in both peoples. Among the Saladoans they are found in about one-third of the subjects, a percentage nowhere equalled, so far as I know, except by the ancient skeletons from the vicinity of Lima, described by Virchow.[6]

It is a singular instance of the misinterpretation of ethnic anat-

[1] Zeitschrift für Ethnologie, 1890, p. 441. The effect of long-continued limited nutrition may bring about diminution of stature, symmetrical and without pathological traits. Thus the extinct elephants of Malta became towards the close of the life of the species quite small. A small but vigorous breed of horses is found where food is scarce. In the Canary Islands the oxen, the horses, and the men all become smaller on the smaller islands (de Varigny). This explains the origin of the dwarf races, the Negritos of the Spice Islands, the Orang Pangang of the peninsula of Malacca, and the Pygmies of Central Africa.

[2] See L'Anthropologie, 1893, No. 4.

[3] Human Osteology, p. 103.

[4] Lehrbuch der Anatomie, p. 306.

[5] See Dr. Matthews's article, "The Inca Bone," in the American Anthropologist, October, 1889; also his remarks on "Human Bones of the Hemenway Expedition" (Washington, 1893). The epactal or *os Incæ* arises from a secondary centre of ossification which appears in the squamous portion of the occipital bone. Its genetic history is in all respects that of an *os Wormianum*.

[6] Ueber krankhaftveränderte Knochen alter Peruaner, in Preussiche Akademie der Wissenschaften, 1885.

omy when Professor Hervé, of the School of Anthropology of Paris, says that the presence of these Wormian bones and the complexity of the cranial sutures are a measure of the rapidity of brain development, and consequently a criterion of the position of a race in the scale of humanity. It is merely an indication of osteogenetic vigor, or the reverse.[1]

Another interesting fact comes in in this connection. Virchow has convincingly demonstrated that anomalies of the bony structure in man are constantly and markedly greater among uncivilized than among civilized peoples, and consequently greater among ancient races than among those now living.[2] This is in accordance with what holds good of the lower animals, for Bateson has shown by an extensive collation of evidence that Darwin was quite in error in maintaining that variation is greater in domesticated than in wild animals.[3] In man its increase in the savage state evidently depends upon fluctuations in the food-supply and frequent changes and excessive stress of mechanical function as the prime factors. These brief suggestions will, I hope, be sufficient to place before you clearly another and, I believe, a juster method of studying the ethnic anatomy of the bones than you will find in ordinary treatises. The polygenists and the reversionists seem opposed to admitting the action of familiar natural causes. Because a human variation is pithecoid, they illogically jump to the conclusion that it is pithecogenetic. Instead of looking on it as the natural result of an existing tendency, they claim it is a return to some primitive type. In fine, instead of accepting the nearest and plainest explanation of an observed fact, they put forward one in itself absolutely inexplicable and carrying with it a tissue of hypotheses, not one of which is more than a surmise.

Coming back to the question of goitre in certain American races and to the dwarfing so often seen in goitrous families, we find that goitre and dwarfing are most frequent in those races which present the greatest anomalies in bone development, the South American and negro mixed races, where we find such peculiarities as Wormian and Inca bones; these, if we believe Brinton, are due to insufficient nutrition and degeneracy of the race.

Haliburton, in his study of the survival of dwarf races in the New World, speaks of dwarfs that invaded British Honduras in 1882; he says, that the famous Panama hats are made by these dwarfs (not in Panama, but on the Garrion River, in British Honduras). He gives their height as four to four and a half feet (any individual,

[1] See Hovelacque and Hervé, Precis d'Anthropologie, p. 59.
[2] See Zeitschrift für Ethnologie, 1891, pp. 54, 56, etc.
[3] Wm. Bateson, Materials for the Study of Variation, p. 572.

whose size is not over five feet three inches is dwarf). These *Mayagans* (as he calls them) come from the Maya country in Yucatan. He mentions another dwarf tribe, *Lacoutou*, who live on the dividing line between Guatemala, Yucatan, and British Honduras. Like other dwarf races they have a prominent abdomen. Mrs. Le Plongeon, in her "Up and Down Yucatan," speaks of a very small dwarf woman, wearing a large hat (Haliburton writes me that the dwarfs of old were noted for wearing hats and caps, in some cases large), who was captured by wood-cutters on the frontier of British Honduras. There is a place called the "City of the Dwarf," near the Andes. (See photograph, showing a Honduras dwarf with a large hat and a pug nose, like that of a Pyreneean dwarf, "like a little ball," it is called by Professor Moragla.)

It is believed by Cunningham Graham that there are dwarf tribes living on islands at the head waters of the La Plata River. Mr. Haliburton specially mentions what he calls "dwarf klichts;" defects of articulation to which are due sounds impossible to represent by writing. I think that these must be due to a flapping of the vocal cords, or the cartilages of the larynx, due to some anomalous condition of thyroid gland. The sound thus produced might be represented, according to Haliburton, by psecht, pecht: this sound is called by the dwarfs, "word eating." Mr. Haliburton has explored dwarfdom in the whole world,—that is, among the Klamaths, in the Cascade Range, in Spain, Morocco, among the Bushmen, in the Pyrenées, in South America, Mexico, and among the diseased of the Scottish Picts. He it was who discovered the dwarf races of North Africa, in Sahara, and the Atlas (as Sweinfurth[1] did those of Central Africa), in a paper entitled, "Dwarfs and Dwarf Worship," which was read before the Ninth Congress of Orientalists, 1881. He thinks that cretinism in the Pyrenées and the Alps is racial and not a disease. "It is a symptom of decadence in a moribund dwarf-race, who in the recesses of the mountains are slowly going through the process of dying out."

Professor Starr writes, "I have seen no little people in Mexico that begin to be as small as the African pygmies. I am told that in the Barranca (Gorge), near Guadalapaia, are 'cretin dwarfs' (plainly diseased). I believe that my informant stated that the same thing was true in other barrancas. So far as African dwarf populations are concerned, they are usually described as lively, active, energetic, brave to a degree in hunting. Would the character thus described be likely to accompany goitre-stricken people on their way to cretinism?"

[1] Sweinfurth, Heart of Africa.

I am told by Haliburton that the manager of the Liliputian Opera Company got several very small dwarfs in the Black Forest. "Their relations were generally of ordinary stature. These survivals are like the numerous ones that Professor Sergi found in Sicily and parts of Italy. The influence of *atavism* accounts for all the cases of dwarfs that are not the result of rickets. . . . I advise you," says Haliburton, "to look over the files of 'Nature' (London, 1893–95), and you will see an account of the dwarfs of a district in Madras described by Colonel Fraser, R.A. The dwarfs are all males, who when six to eight years of age stop growing. They marry ordinary sized women, and beget children,—the daughters healthy and like the mothers, the sons dwarfs and so feeble that the larger people have to support them. It is a singular instance of even a *half-breed strain* dying out. One would suppose that an infusion of healthy blood from a larger race would counteract the tendency of dwarf races, under uncongenial surroundings and using poor food, to degenerate and die out. . . . You will be much interested at the wonderful facts that have come to light as to dwarf races, all over the world, and their being substantially one race."

Brinton is of quite different opinion. He denies decidedly the existence of dwarf races. In his review of Quatrefages, "pygmies," he says, "Probably any people would become dwarfs under certain conditions, and the trait is therefore not a racial one."

At the meeting of the American Association, in Brooklyn, in 1894, the same author affirms "that he knows of no existing dwarf races, and did not believe in their existence."

Brinton also says (Review of American subjects at the German Anthropological Association, Innspruck, 1894), "Dr. Virchow, in discussing dwarf races, spoke of some very small (nanocephalic) skulls from Southern Venezuela and Colombia, but did not assert that they indicated a pygmy tribe there resident, as his argument rather was that the cerebral capacity does not necessarily prove that the person who carried the skull was of extremely low stature. In fact, up to the present time, though individual dwarfs are known to have been artificially cultivated in Mexico for the amusement of the nobles (!), no dwarf tribe has yet been discovered."

VARICOSE VEINS.[1]

By James J. Walsh.[2]

Synonymes.—Varix, phlebectasis, phlebectasia, — hemorrhoids when the condition affects the veins of the rectum; they are so called because of the hemorrhages that the varicose tumors give rise to in this situation, and varicocele when they occur in the veins of the pampiniform plexus. The first part of the word referring to the varicose condition of the veins, the latter part from the Greek κήλη, a tumor,—being applied to any tumor in this region.

The word is derived from *varus*, which means crooked, bent; not from *variare*, to vary, because the veins are of varying size, though some of the French writers adopt this last derivation for the word.

Definition.—Varicose veins are a pathological, irregular, and permanent dilatation of veins in any part of the body.

Pathological because the physiological dilatation of veins that comes from gradual interference with circulation, as is seen in the distended veins over a tumor, or in the jugulars, from obstructive heart-disease, is not properly varix. Irregular because the regular dilatation of veins, as in anastomoses, that form after the obliteration of venous trunks, is normal and physiological and does not constitute varicosity. Permanent because the distention of veins that occurs temporarily from interference with venous circulation, and that disappears after the obstruction has been removed, are not varicose veins in the true sense of the word. Varicose veins are usually tortuous because the overgrowth of tissue in their walls has affected their size longitudinally as well as transversely, and so they are lengthened and become somewhat doubled on themselves in the

[1] The thesis to which was awarded the Dr. Louis J. C. Kimmel Prize, Medical Department, University of Pennsylvania, 1895.

[2] Varicose veins was chosen as the subject for a thesis because it is an affection that in some form or other comes to the surgeon for treatment almost oftener than any other. It was hoped at the beginning to illustrate it by microscopic sections of varicose veins from various parts of the body; but radical operations for their relief were not frequent enough to give the opportunity for this.

The subject is so large that only the main features of it could be dwelt upon. The etiology of varix it is that is of chief interest in our day, and it is to this part of the subject that most attention has been devoted by the writer. The opinions as to the true cause of varix are really no more definite now than they were years ago, and the conclusions in the thesis have been necessarily a reflection of this state of affairs. As regards treatment, palliative as well as radical, only the principles that underlie sound rational treatment could be pointed out, and the general methods of the more important radical operations indicated.

Anything in the recent literature of the subject that has promised help has been freely consulted, and the material thus collected as freely used.

Special thanks are returned to Professors White, Guitéras, and Penrose for opinions and suggestions.

tissues. Their walls are of varying thickness; in some places hypertrophied, in others atrophied at times to dangerous thinness.

History.—Varicose veins have had a place in medical literature from the very beginning. Hippocrates mentions them, and suggests palliative measures, or in bad cases obliteration of the veins. Celsus enumerates a number of operations for their radical cure in use among the Romans. Two centuries before his time, Marius, the Roman dictator, as Plutarch relates, had one of the Roman surgeons of his time remove the varicose veins from his leg because it spoiled the appearance of his calf. He stood the excruciating pain of the operation on one leg without a murmur, but when the surgeon was proceeding to do as much for the other leg, he stopped him and said, "No; the improvement in appearance is not worth the pain." Paulus Ægineta suggests ligation, and after a method that very much resembles the latest procedures in that line. Ambroise Pare attributes the etiology of varix to "melancholic humors retained in the blood."

It was only after the discovery of the circulation of the blood that they were really understood, and not until after 1830 that they attracted the attention their frequency deserves.

Frequency.—Varicose veins in some form are a very common affliction. The rejections of recruits for varix of the leg in England number on the average about 18 per 1000 of those presenting themselves each year. For varicocele, 12 per 1000 are rejected. As only those are rejected who suffer from large and serious varicosities, this does not represent by any means the whole number afflicted. Besides, records compiled from such a source represent the affliction only among male adults who are about to take up a military life, and are usually robust and healthy. And it is in those of lax fibre that varix is likely to occur. Of 600 male adults admitted for various diseases and examined by Bennett,[1] at St. George's Hospital, 300 were selected of robust build, and 300 of slight frame. Out of the 600, eighty-one had distinct varicocele (nearly one in seven). Of these eighty-one, fifty-nine were of the weaker class; that is, nearly three-fourths of all.

French surgeons have calculated that one out of five of the human race suffer from varix in some form, and the number has been made even greater than this. If to Bennett's figures for varicocele, as given above (one out of seven), are added the number of those suffering from varix of the leg and hemorrhoids, it would not be surprising to find that nearly one out of three had varicose veins in some form.

Occurrence.—Varicosities occur in any part of the body. Most

[1] Clinical Lectures on Varicose Veins.

frequently in the lower limbs, often in the hemorrhoidal veins, and in those of the pampiniform plexus of the testicle. On the abdomen they are not uncommon, and sometimes attain large dimensions. The classical illustration of the text-books on surgery of the enormous distention of the abdominal veins tortuous and radiating from the umbilicus, and known as the caput medusæ, is very familiar.

They occur on the face not rarely, and especially on the nose. A number of cases of varicose veins of the upper limbs have been reported, and this seems a favorite location for congenital varix. The internal organs, especially the bladder and the liver, are affected. They constitute a well-known complication of labor in the vagina, and an excruciatingly painful affection of the urethra in the female.

The recent death of Professor Studinski, of Cracow, was found at the autopsy to be due to a ruptured varicose vein of the esophagus. In all of these situations, histological study of the diseased veins shows that practically in them all the pathological processes are the same, so that all can be grouped under the common title of varicosities.

Etiology.—Until comparatively recently obstruction to the venous circulation was looked upon as the only and all-sufficient cause for varicose veins. There are still some authorities who seem to think this a sufficient cause. But the impression has been steadily growing that there is always another factor at work. Billroth[1] summed up the influence of venous obstruction as follows: Sudden obstruction causes edema; gradual obstruction brings about free collateral circulation. Neither of them will alone give rise to varicosities, unless there is some tendency in the veins themselves, either acquired or congenital, that predisposes them to varix.

It is the custom of writers on the subject to give two classes of causes for varicose veins, predisposing and exciting. The predisposing causes are said to be age, sex, profession, heredity, pregnancy, constipation, certain anatomical peculiarities of veins, and perhaps a certain diathesis the French have called the varicose diathesis.

Age.—Varicose veins are seldom seen in the first two decades of life. Usually, when they do occur early, they are congenital and peculiarly seem to affect the upper limb by preference. From 20 to 30 they seem more frequent, from 30 to 40 they occur most often, then more and more rarely until the end of life. Varicosities are observed most frequently among elderly people, but their beginning can be traced to earlier years, especially the decade between 30 and 40. Veins that have been able to stand the wear and tear of life up to the age of 40 will usually remain competent afterwards. Varicose

[1] Surgical Pathology, Haeckel, 1870.

veins of the cord or varicocele form a notable exception to this rule. They develop almost invariably between the ages of 15 and 25, though they have been noted as early as 6 and 8 by Quenu, and demonstrated in a child of 4 in the dissecting-room by Bennett. It is noteworthy that with one exception in all of Bennett's cases where varicocele and varix of the leg occurred together, the varicose disease was noted very early, this observation lending itself to the views of those who think varicosities primarily due to some congenital weakness in the veins themselves.

Sex has an influence indirectly in two ways that nearly counterbalance each other. Males, because of their harder work and consequent strain on their circulation, would be much oftener affected than females, but that pregnancy so often leads to the appearance of varicosities in women. Bennett[1] says that, eliminating pregnancy, varicose veins occur much oftener in the male than in the female. As it is, according to his statistics, 21.62 per cent. more women suffer from varix in the lower extremities than men. At least the same proportion would hold for hemorrhoids and the female liability to vaginal, vesical, and urethral varicosities, and to varicose veins in other parts of the genital tract more than make up for varicocele in the male.

Profession.—Dupuytren pointed out that varix in the limbs seemed to occur more frequently in those that were much on their feet; such as servants, compositors, cooks, brick-layers, washer-women. But as by no means all, or even a majority, of those engaged in such occupations are affected, it is doubtful how much influence the constant standing has, apart from other factors.

Heredity has seemed to many of recent years to have a distinct share in the etiology of varicose veins. Schwartz[2] and Quenu in France, and Bennett[3] in England, have been able to trace heredity in a large number of cases. In Bennett's 500 odd cases, there was a family history of varix in over 35 per cent.

Pregnancy is a very frequent predisposing cause, and successive pregnancies add to the number of those affected. Of 300 women examined by Budin,[4] 152 were primiparæ, 148 multiparæ. Of the primiparæ, thirty-four had varicose veins, of the multiparæ, sixty-six had them. Almost twice as many of the latter affected as of the former. The number in both cases of those that remained without varices after pregnancy shows that there must be something else besides merely the obstruction to the venous circulation from pressure upon venous trunks by the pregnant womb to account for them.

[1] Clinical Lectures on Varicose Veins, Lancet, 1889.
[2] Diet. de Méd. et de Chir. prat., Art. Veines,
[3] Clinical Lectures on Varicocele.
[4] Thèse d'Aggregation, Paris, 1895.

Constipation.—This has been set down as a prominent cause for the three principal classes of varices—hemorrhoids, varicocele, and varicosities of the lower extremities. It probably has great import in the etiology of hemorrhoids, but more because of the straining it causes than by any mechanical influence that the accumulation of feces may have upon the circulation. The rectum itself is normally empty,[1] the collection of feces occurring in the sigmoid. The position of the sigmoid and the support it derives from the iliac fossa makes it eminently suited to bear the weight of the feces without allowing them to prove a source of compression to important structures, unless where other pathological factors are at work. It is doubtful, too, if constipation has as much influence as is claimed for it in the production of varicosities of the leg, though, of course, the greater frequency of the affliction on the left side seems to point to that. Whatever influence it has as a causal factor in varix, only serves to emphasize the fact that something else besides venous obstruction is needed to produce varix. For while so many suffer from varicose veins, a still greater number have been at some time of constipated habit, and cases are continually coming to notice where, despite chronic constipation extending over years, there are no signs of varices.

Finally, there are certain *anatomical peculiarities* of veins in various regions that are supposed, and seemingly with good reasons, to predispose to varix. Varicose veins of the leg, for instance, are predisposed to, by the fact that the veins here have to support, while the individual stands, the hydrostatic pressure of long columns of blood, broken only by valves that are at times by anomaly infrequent, or pathologically incompetent. The venous circulation of the leg, too, is interfered with by the long continued action required of the muscles of the part and consequent contraction of deep veins.

Varicosities in the surface veins of the leg used to be attributed to the lack of support, given the veins by the cutaneous tissues immediately underneath which they run. But the influence of this as a causal factor has been put in the background by observations which show that the deep veins are often varicose, and that they are, perhaps, the first part of the venous system in the leg to be involved by the varix. Verneuil found on dissection that while the deep veins were at times varicose, without the superficial veins being affected; superficial varicosities, with the exception of certain special forms of varix in the saphena magna, occurred only secondarily to the affection of the deeper trunks. In the only case of varix that I saw dissected, No. 87, in the dissecting-room this year, the internal veins were as

[1] Diseases of the Rectum, Kelsey.

tortuous and irregular as the external. Callender, in a series of dissections, however, was not able to entirely confirm Verneuil's observations.

Stature does not seem to have much effect on the production of general varicosities, for they affect the tall and the short about equally; if anything, they affect those of small size more frequently, according to Bennett and Beurnier.[1] For certain limited forms of varix in the saphena, this does not hold true, and here there is a frequent preponderance of tall people affected, that points out clearly the influence of the long column of blood in, at least, predisposing to their production.

Varicocele has been attributed[2] "to the dependent position of the testicular veins, to the fact that they are very large compared with the artery, so that the *vis-a-tergo* is reduced to a minimum; they occupy a loose tissue, and are lacking in support and in the aid afforded to other veins (as the limbs) by muscular contraction; they are very tortuous, form many anastomoses; have few and imperfect valves, and they are exposed to pressure in their passage through the inguinal canal. The left veins are more frequently affected than the right. Mr. Spencer has shown that the veins in the left cord are always much larger than those of the right. It may also be pointed out that the left testicle hangs lower than the right; that the left spermatic vein enters the left renal at a right angle, while the right spermatic vein passes obliquely into the vena cava; and that the left vein passes beneath the sigmoid flexure, and is thus exposed to pressure from the contents of that bowel."

A better reason than any mentioned by Mr. Treves seems to be the fact lately made evident by dissections[3] that the left spermatic vein often communicates with the portal system, thus making the pampiniform plexus on the left liable to the influence of congestions of that system.

The inferior hemorrhoidal veins communicate with the general, as well as the portal, venous system. "The sphincter ani being, as it were, a water-shed, from the sides of which the veins flow off to both systems, and on which they anastomose with each other."[4] This fact helps to account for the frequency of hemorrhoids, internal as well as external; but it leaves us to conjecture the reason why so many seemingly in condition to be affected remain unaffected.

The varicose diathesis of French writers seems to be nothing

[1] Les Varices, Paris, 1894.
[2] Treves, Surgical Anatomy.
[3] Varicocele, Bennett.
[4] Otis, External Hemorrhoids, American Journal of the Medical Sciences, January, 1895.

more than a pathological relaxation of tissue occurring in people who live well, who are not naturally very strong, and in whom lack of exercise has engendered lack of tone with consequent constipation and sluggish liver.

Exciting Causes of Varix.—As we have said in discussing the predisposing causes, obstruction to the venous circulation used to be thought an all-sufficient cause for the development of varicosities. It is true, without a doubt, that it is one of the most potent etiological factors; but experiments and observations seem to show that it is never enough of itself to determine their formation. Pressure, as by tumors, or the pregnant womb, or the obliteration of venous trunks by thrombi, or the backward pressure of regurgitant heart-disease, cause dilatation of veins, but not always varicosities, as the experience of any surgeon will show. Even in a vein communicating directly with an artery as in arterio-venous aneurism, where the entire force of the arterial blood-pressure is directly exerted upon them, the venous walls dilate, but do not necessarily become varicose unless there are other factors at work.

Lesser[1] tried to produce varicosities in animals, by introducing artificial obstructions into their veins, but failed to get anything more than the compensatory dilatation which comes with the formation of venous anastomoses.[2] His conclusion is "candidly certain important factors in the etiology of varices must remain hidden until we have more definite embryological details as to the development of vessels in the various organs, and especially the skin. We shall have to know the powers and processes of embryonal tissue particles that outlast intra-uterine life." He quotes in confirmation of this opinion Virchow himself, whose conclusion after experimental investigation as to the etiology of lymphangiectasis is very similar.

There are, however, certain causal factors that act upon veins that are predisposed to varix that give rise to varicosities. For instance, thrombus of a large venous trunk, as after typhoid fever, or after septic processes, as phlegmasia, or any injury to the veins such as happens where the soft tissues are extensively lacerated, often proves the starting-point for varices in the predisposed. Fractures sometimes have the same effect. Obstruction to the venous circulation, as by tumors, often seems to give rise to varix in the same way. Constipation, which we have spoken about among the predisposing causes, seems rather to be an exciting cause where the predisposition to varix exists. It is often itself caused by a sluggish liver, and it is

[1] Virchow's Archiv, Band CI, 1886, Ueber Varicen.

[2] Lesser's experiments are most interesting, and some of them are very ingeniously arranged to imitate the gradual and prolonged obstruction to venous circulation that seems to produce varix so often.

hard to say whether or not the congestion of the portal system and the increased intra-abdominal pressure may not really be an important factor in the etiology of varix. The very great frequency of varicose veins on the left leg first, and of varicocele, so invariably on the left that a right varicocele is a surgical curiosity, does seem to justify to some extent the opinion so long held of the influence of a distended sigmoid in causing obstruction and varix.

A very important exciting cause of varix seems to be the gradual increase of the number of insufficient valves in the veins, with advancing years. Klotz,[1] after a series of most careful investigations, found that with advancing years more and more of the valves become insufficient, and this from the very beginning of life; while in the fetus and new-born careful examination has shown no insufficient valves. At the age of 25, 17 per cent. of them were insufficient;[2] at 48, 29 per cent.; at 54, 40 per cent., and at 70, 81 per cent.

The absence of valves in the hemorrhoidal veins plays but a secondary *rôle* in the etiology of hemorrhoids, which are primarily due to some disturbance of the portal circulation. The valves in the spermatic veins, when they exist,—and they are not always demonstrable,—are often inadequate. They especially become so after puberty, when the greatest call is made on them. The recently demonstrated connection, especially on the left side, between the spermatic vein and radicles from the portal system puts the pampiniform plexus at the mercy of all the variations of liver circulation, and the fluctuations of intra-abdominal pressure.

Given the disposition of the veins to become varicose, two mechanical factors—the one suggested by Mr. Callender, the other by the late Professor Agnew—would go far to explain their origin and extension in the leg. "Varix would appear to commence, Mr. Treves says (it is Callender's idea), most often at the points where the deep veins join the superficial. At these points three forces meet, the column of blood above, the next valve below, and the force of the blood driven out of the contracting muscle." This would explain the origin of varix at this point, first hypertrophy of media to resist pressure, then dilatation as the force proves too great for resistance. As

[1] Untersuchungen über die Vena saph magna beim Menschen besonders rücksichtlich ihrer Klappen-verhältnisse, Archiv für anatomische und physiologische Anatomie, Abtheile II und III, Heft 87.

[2] A case that came under my notice last summer made me think it possible that suddenly-developed insufficiency of an important valve might lead to the rapid development of varix. A student of 25 years strained himself in jumping. He was not in proper training at the time, and within two weeks the strain was followed by the development of varicocele, of which he was sure there was no sign before. The affection gave him the usual nervous symptoms of varicocele until the assurance that the affection was very common, and of no significance practically, led him to disregard the dragging feeling caused by its presence.

to the extension of varix from such a point, Professor Agnew says, "The effect of one curve is to reflect the circulating current forcibly against an opposite and higher point of the vein, and to cause another curve in that direction. A bed may be cut for a stream, whose sides shall be geometrically parallel, and yet if left unrestrained it will soon groove out for itself a channel like a trail of a serpent, because a slight indentation was formed on one of its banks. The same law is in operation to produce varicose veins."

In particular locations, local causes lead to varix directly as tight garters to the varicose veins of the leg, tight lacing by increased intra-abdominal pressure to hemorrhoids, etc. Anything that will cause pelvic congestion is liable to lead to hemorrhoids; and their presence is directly dependent on various uterine, vesical, and urethral irritations that cause congestion. Endometritis and salpingitis, vesical catarrh, and stone, stricture, and adherent prepuce, may all thus be exciting causes. Disturbances of menstruation have so often been observed in connection with varix of the lower extremities, especially when the veins of both legs are affected, that dysmenorrhea and amenorrhea, more particularly the latter, must be considered as etiological factors in the production of the varicosities.

To sum up the etiology of varix, though we have divided the so-called causes into predisposing and exciting, because there are some conditions that seem to be more directly concerned in the production of varicosities than others, it must be confessed that before any cause can act a certain predisposition of veins, most likely congenital, often hereditary, is necessary for their development.

Epstein [1] concludes that his microscopic observations and clinical experiences show that as in arterio-sclerosis, so in varicose veins the affection is primarily dependent on lessened resistance (vital) in the tunica media of the vessels; while the mechanical factors, congestion and increased pressure in the venous system, have only the significance of associated causes which favor varicosity. The lessened resistance [2] of the media leads to a widening of the lumen, to compensatory endophlebitis and to eccentric hypertrophy, or when there is excessive dilatation to eccentric atrophy of the muscular coat of the veins.

Pathology.—The morbid change macroscopically in a varicose vein is the irregular thickening of the vein walls with atrophy, and thinning here and there. The force that caused the dilatation, or as

[1] Ueber Varicen, Virchow's Archiv, 108.

[2] Professor Guitéras seems to incline to this view that a certain relaxed state of the tissues is always a predisposing factor in varix. He called my attention to the fact that he thinks he has observed, during many years in the South, that the negroes are not as frequently affected with varicosities as the whites. My memory of five months' service in a surgical dispensary, where some fifty cases were treated each day, seems to point out the same thing. The idea seems worth investigation.

it was in the beginning very probably a hypertrophy, also caused a lengthening of the veins; hence the tortuosity. As happens in hypertrophy of the heart, the continual pressure led here and there to eccentric atrophy from over-distention. Instead of the walls of varicose veins and surrounding connective tissue becoming hypertrophied, an opposite change is frequently induced; the veins become attenuated, and the connective tissue for the most part disappears; the vessels contracting an attachment to the skin. Under such circumstances pouch-like protrusions appear over the limb. (Sometimes spoken of as cystic dilatations of the veins.) When the person is standing these present a blue appearance. It is especially in these cases of atrophic varix that serious hemorrhage is likely to occur from the slightest traumatism. This complication may call for treatment in any situation where varix occurs. In the leg, rectum, cord, broad ligament, vagina, bladder, urethra, even esophagus. Where the danger from hemorrhage is great, it constitutes the great indication and justification for radical treatment by the obliteration of the veins.

Microscopically, the appearance of varicose veins in all situations is as was first pointed out, I believe, by Cornil and Ranvier,[1] practically the same. A state of chronic inflammation is found characterized by the multiplication of the cellular elements of the connective tissue, and especially of the inner layer of the media. From the very beginning, however, the perivenous connective tissue participates in the morbid changes. It is at first infiltrated with serum, giving rise to slight edema in the course of the dilated vein. Later it is crowded with migrated leucocytes which become developed into connective tissue corpuscles, and finally into true fibrous tissue, the condensation of which increases the thickening about the veins, glues firmly together their convolutions, and fills their cavities with coagula. At times degeneration and calcification of the coagula within the veins lead to the formation of phleboliths or vein-stones. As Billroth says, from this serous and cellular infiltration to chronic inflammation and even ulceration is but a step. A slight traumatism and infection of tissues so lowered in vitality lead to the formation of chronic ulcers, and the breaking out of chronic eczema.

Connective tissue, artery, nerve, even bone, become involved in this diminution of vitality; and the vascular and trophic changes, as a consequence, lead to obstinate intractability of any intercurrent affection.

Symptoms.—The objective symptoms of varicose veins are always practically the same. At times there are complications due to the

[1] Journal d'Anatomie normale et pathologique, 1872.

generally lessened vitality of the tissues through which they run. These introduce phases of the inflammatory process that differ according to the location of the veins, and will be spoken of elsewhere.

There are always the tortuous, irregularly thickened, dilated veins typically present wherever varices occur. When not very extensive, they follow the lines of the important veins, when they become large, dilatations occur just above the valves, and they give soft compressible tumors just above the seats of the valves. Sometimes several veins become varicosed at the same point, and, being folded over one another, give rise to another form of varicose tumor. In the rectum such varicosities become almost pedunculated and so may be mistaken for polyps, unless careful examination is made.

Subjective Symptoms.—These are always the result of the pressure of blood in the distended veins. They consist of a feeling of fulness and distention in the parts, with weight and a dragging sensation that in bad cases becomes a dull ache, or after long standing almost a crampy pain. All these symptoms gradually disappear when the patient lies down. Bennett has found in his cases, though no one else has called attention to it, that in patients with beginning varicosities, there is, directly after the patient rises from the recumbent posture, an acute crampy pain that is pathognomonic. After an hour or so this subsides, and later comes the usual aching pain, very different in character with edema of the limb. He explains the remission by the active resistance due to a tonic spasm of the muscular coat that gives the crampy pain. This is gradually overcome, and then there are no symptoms until the hyperdistention causes the dull aching pain that usually accompanies varix.

In the rectum, the subjective symptoms of fulness and weight are modified by the tenesmus occasioned by their presence in the bowel. Nervous spermatorrhea, real or imaginary, supposed sexual impotence, and exaggerated genital uneasiness form a set of subjective symptoms that occur with varicocele, and that must be referred to some irritative trophic influence on the nerves of the testicle. They constitute a condition allied to sexual neurasthenia or hypochondriacism familiar to every surgeon.

It has made the patients the willing prey of quack specialists often for years, and should awaken pity rather than impatience. It is usually a symptom of physical reflex irritation, not mental vacillation, and it should be looked upon as such.

(TO BE CONCLUDED.)

MEMORANDUM.

INOCULATION OF LEPROSY.

THE following article has been translated and published in Norwegian with a note by Dr. Armauer Hansen, of Bergen, Norway:

The leprous stigmata or quality are attracted to the neighborhood of light and free air, as all vegetables are, and therefore are located in such uncovered parts as the face, the hands, the forearms, legs, and feet, where they are nearest to light and air,—that is, to oxygen. Another proof that they tend to the most oxygenated parts is that the spots and tubercles appear first in greatest quantity in the convex and more vascular parts of the organs, where oxygen is most abundant.

Professor Cope, discussing the question of consciousness in variation and evolution of organic beings, says, "The causes of the movements of organic beings are various. The best known are conscious states, as hunger, cold, heat, and various other sensations; some of them of higher mental grade, as fear, anger, etc. Movements by the lowest animals, as that drop of jelly, the amœba, appear to be the result of sensations. . . . The phenomenon of heliotropism, for instance, where these simple creatures leave the dark and crowd into light places, cannot be shown to be due to chemical or physical causes only. They seek oxygen, which is more abundant where sunlight penetrates, but they have to be aware that they need it, and must have some knowledge of the fact, when they get it."

Let us see if this last theory of Cope can be applied to the leper bacillus. The tubercle bacillus which is nearest in kind to, if not identical with, the leper bacillus (perhaps a variation of the same species), when drawn into the organism by respiration, inoculates most frequently the apex of the lung, probably because the motion there is least. In that place there is much oxygen. Lupus or skin tuberculosis is most frequent where insect life is very abundant. If the transmission, in the first case, has taken place by inoculation, as is demonstrated, we may easily presume that the inoculation, in the second case, may be effected in the same manner, probably by the intermediary of insects. I do not think that there is any choice given to the bacteria of leprosy, as to localization, just as there is none in the tubercle bacillus. They develop wherever chance has

deposited them, and wherever they find favoring condition and no obstacles, for instance, the outside of forearm, where there is little muscular movement. On the exposed portions of the body, oxygen retains and feeds them. The inoculation by insects can only be successful in these places, in others, circumstances are too much against them.

An internal inoculation is also easily imaginable and even probable. Salt fish is eaten all over the world; raw fish is eaten only in some countries, like Japan. Fish, especially the carp, which is so general an element of alimentation in Japan, where it is eaten raw and even alive, feed on the larvæ of mosquitoes, and may well be suspected of communicating the spores of diseases, extracted by the insects from the exposed parts of diseased bodies. If not spores, then the toxines of the bacilli.

Considering these points, I should be disposed to conclude that external inoculation means tubercular leprosy, and internal inoculation, anesthetic leprosy.

NOTE.—In lupus we have the same trophic loss of tissues as in leprosy, and the bacilli of the two diseases are not distinguishable except by this circumstance: that the leper bacillus is gregarious, while the other is more individual. The microbes presenting themselves so differently may differ in a similar way in their action; this would explain the resemblance which exists certainly between these two diseases and also the difference. I should think that leprosy and lupus are the same disease with a difference. Ashmead, "Peculiarities of Colombian Leprosy."

(Extract of a letter to Hansen.)

". . . In this article I try to bring out the following points: Non-volition of the bacilli in their localization: light and free air places; probability of the leper bacillus and the tubercle bacillus being variations of the same species; the seeming preference of the tubercle bacillus for the apex of the lung, and of the leper bacillus for the extensor-side of members, is due, perhaps, to the lack of disturbance in those places; the spectacular difference between lupus and leprosy in Colombia, South America, may be a result of the well-known and admitted difference between the bacilli of both diseases, the tuberculous microbe being individual, while the leprous bacillus is gregarious. . . ."

(Extract of a letter from Hansen.) "BERGEN, November 10, 1895.

". . . You will have nothing to object, I hope, to my translating your little paper and publishing it in our Journal. I must, however, add a little note, on my own account, as to the identification of leper and tubercle bacillus, in which I have no belief, as you will see from my book, which you, as I hope, have received now. The publishers tell me they have sent it. I am very glad to see that you have not found any precolombian leprosy; just as civilization leprosy has spread from Eastern countries. Yours very truly, G. ARMAUER HANSEN."

ALBERT S. ASHMEAD, M.D. (Univ. of Pa.),
Late Foreign Medical Director, Tokio Hospital, Japan.

ALUMNI NOTES.

The William Pepper Laboratory of Clinical Medicine.

The exercises attending the formal opening of the William Pepper Laboratory of Clinical Medicine were held on Wednesday afternoon, December 4, 1895, in the amphitheatre of the University Hospital. Addresses were made by Dr. John S. Billings, Dr. W. H. Welch, and Provost Harrison.

Dr. Billings said in part:

I have been honored by Dr. Pepper, with the request that I shall, in his name, formally present to-day to the University Hospital, and through it to the University of Pennsylvania, the William Pepper Laboratory of Clinical Medicine, which is now completed and ready to begin its important work.

Now what is this gift? That part of it which is material and visible to-day is a building sixty-two feet long, forty-two feet wide, and four stories high, with a basement cellar; built of brick and terra-cotta on a stone base to the first floor, with a green slate roof; and fitted up inside with tables, work-benches, and apparatus of various kinds.

The essential idea of the plan of this laboratory is a central bundle of perpendicular tubes or flues forming a large chimney-stack, around which the work-rooms are so arranged that each one has its own flue on its inner face and an abundance of light on its outer face. The purposes of the several rooms are indicated on the diagram before you. On the first floor above the basement are rooms for microscopical, for chemical, and for bacteriological investigations of the secretions, excretions, outgrowths, discharges, and other products from the bodies of the sick; with a balance-room. On the second floor are rooms for anthropometrical work and research, the laboratory of the director and his assistant, and a store-room. On the third floor is a large laboratory for post-graduate students, and a dark-room for photographers' work. On the fourth floor are a research-room for special workers, an assembly-room, a library, and a janitor's room. Corridors connect each floor with the adjacent hospital pavilions, which will be devoted to medical cases. One of these corridors will make an excellent photograph gallery, a dark-room being provided in the laboratory. The building is heated by steam and at present lighted by gas. The simple fittings of the rooms, benches, tables, hoods, etc., you will see for yourselves when you visit the building, as I hope you will do, after the addresses in this amphitheatre are concluded.

All this, however, by itself is merely dead mechanism, and a still more important part of the gift is still to be mentioned, – namely, that which provides for brains to make use of it, and for the making of public utility the results obtained by the conjunction and co-ordination of brains, building, apparatus, and opportunity. Each of these things is required to produce satisfactory results from a laboratory, but this does not seem to be as generally well understood as it should be.

Dr. Pepper, however, has provided an endowment as well as a building, and

this endowment consists partly of money and partly of some of his own brain-work by way of commencement. That you may understand this more clearly, I will refer to one of the points of his terms of gift, which terms were accepted by the authorities of the hospital and of the University. The gift consisted of $50,000, one-half of which was to be used in building the laboratory and the other half invested as a special endowment fund. The director and assistant director of the laboratory are to be appointed annually by the board of managers of the University Hospital, upon the nomination of the professor of the theory and practice of medicine and of the professor of clinical medicine, in the medical faculty of the University. The present director, duly appointed in accordance with this condition, is Dr. William Pepper, and therefore, as I said, some of his own brain-work is to be available as part of the endowment, for many years to come let us hope. Further stipulations I will give presently, in his own words. Dr. Pepper's letter of gift, dated February 24, 1894, closes as follows: "It is my intention, should my life and strength be preserved, to supplement this foundation by a further endowment for the purchase of apparatus and the publication of scientific memoirs."

Having thus told you briefly what this gift consists of, I will now proceed to answer two questions which no doubt many of you have asked,—namely, (1) Why did Dr. Pepper make this gift? (2) What are the main purposes of the gift, the objects to be kept in view in its future management?

These two questions are not always quite the same, but in this case the answers cover nearly the same ground. The history of the first conception and gradual development of an idea, until it takes definite shape and form and develops action, is sometimes very interesting, and as I have known something of the way in which during the last ten years this particular idea has taken shape, I have asked Dr. Pepper to give me a sketch of the process, which he has done in the following letter:

"My dear Dr. Billings:—In response to your request that I would write a letter to you, as director of the University Hospital, stating my purpose and wishes in establishing this laboratory of clinical medicine, I have prepared, with considerable hesitation, the following statement:

"My father, the late William Pepper, held the chair of the theory and practice of medicine and of clinical medicine in the University of Pennsylvania from 1860 until the spring of 1864, when he was forced to resign by the progress of the disease which caused his death on October 10, 1864, in the fifty-fifth year of his age.

"Already at that time a few young men had formed the definite hope of reforming the system of medical education in America, and of placing it on the sound basis of clinical teaching. I can say for some of them, including my brother George, who died in 1872, at the age of 32 years, after a brilliant and all too short career, that the eloquent advocacy of clinical teaching and its effective application by my father supplied at once the inspiration and the exemplar. Both father and son wore themselves out in the service of humanity and science, and fell victims to the terrible scourge of pulmonary consumption.

"It is not necessary to review the long and weary struggle for reform in medical education which has only now ended. The *rôle* played by the University of Pennsylvania has been a proud one, as befitted her traditions and her obligations. The names of Edward Rhoads, of Horace Binney Hare, of John S. Parry, of William F. Jenks, should not fail of mention, although they fell early in the struggle; for these were brave spirits, who dared to aspire greatly. And other names, Leidy and Agnew of the immortals; and Stillé and Weir Mitchell, still happily preserved to

us in their rare intellectual vigor; and Wood and Norris and Tyson, my life-long colleagues, must be named with grateful tribute for their labors in the cause of higher medical education, and of clinical teaching and scientific research.

"It was our fond dream, in those early days, that a happy time would come when well-equipped laboratories with adequate endowment would offer the chance of original investigation which was then denied. Horace Hare fitted himself by long and costly training for the special work of chemical research in the field of clinical medicine. His gifts and attainments were worthy of his descent from America's first great chemist, Robert Hare. As chairman of the building committee of this hospital, in 1872 I planned some small rooms around the base of this amphitheatre where you now stand; and I can recall vividly the pleasure with which I gave the necessary equipment to have the best of these rooms ready for Hare when he returned, in 1875, from the laboratory of Ludwig in Leipsic.

"He was gratified, and entered at once with enthusiasm upon important chemical researches in connection with cases of disease in the hospital wards. In less than one year pulmonary consumption attacked him, and he died in 1878. Parry and then Jenks succumbed to the same affection, while Rhoads, one of the most beloved of our little group, died of organic heart-disease. You cannot wonder that I registered a vow to do what I could to secure the erection and endowment of a special department of the University Hospital for chronic diseases of the lungs and heart and a laboratory of clinical medicine to promote original research into the causes and nature of disease. At a meeting of the board of managers held August 12, 1879, a memorial setting forth the necessity of provision for those suffering from chronic diseases of the chest was formally approved, and it was resolved that a special ward should be opened so soon as the sum of $100,000 was available. It was with special reference to this undertaking that the annual charity ball was established, and over $12,000 was secured the first year for the new department of this hospital. In addition to this, the funds necessary to endow seventeen beds in perpetuity, amounting to $85,000, were contributed by generous men and women; and then a noble-hearted man, Henry C. Gibson, came forward with the proposal to erect a separate wing to be devoted to the care of patients with consumption and other chronic diseases of the chest. It was you, Mr. Director, who prepared the plans of the Gibson wing, a structure which will commemorate so long as the University of Pennsylvania shall endure the name and good deeds of one of the best friends the University has ever possessed. It is true it has been impossible to devote this wing exclusively to these cases until now, when the completion of the new surgical wing of the hospital will permit proper classification and arrangement of patients. I cannot refrain from the briefest mention of the legacy of $60,000 of my cousin, Henry Seybert, to endow a ward in the Gibson wing for chronic diseases, and of the much larger bequests made by two noble women, which have not yet become operative.

"The most important step was taken when I learned one morning in 1889 that it might be possible to secure to Philadelphia and to the University the services of Dr. John S. Billings. Before evening Mr. Henry C. Lea had responded to an earnest appeal that he would increase a previously contemplated gift to equip a small laboratory of hygiene to an amount sufficient to erect a complete laboratory. His conditions were that if an additional sum of $200,000 was secured for endowment; if Dr. Billings were secured as director of the laboratory; if the study of hygiene were made obligatory on students of medicine, of dentistry, and of certain other branches, he would erect at his expense a laboratory of hygiene, at a cost of not less than $50,000. I was at your house in Washington before breakfast the next

morning, and we drew up and signed an agreement, the operation of which has been the establishment of the most complete laboratory of hygiene in America, under your direction, and the rapid advancement of this hospital, under your administration, to a very high level of efficiency. Henry C. Gibson contributed $25,000 towards the laboratory fund,—many generous friends co-operated,—but the fund had reached only the figures of $140,000, when $60,000 was received from George S. Pepper coupled with the condition that I should designate the particular chair which should be endowed therewith. Not one moment's hesitation did I feel in naming the chair of hygiene.

"Even this, however, did not complete our compliance with the wise though stringent conditions imposed by Mr. Lea. He had stipulated further that when the requisite amount of $200,000 was secured for the endowment of the laboratory of hygiene, an effort should be made to obtain subscriptions of money sufficient to justify the board of trustees and the medical faculty of the University in raising the standard of medical study and in prolonging the course to four years. In order to secure compliance with this final condition, it was deemed necessary that a subscription of $50,000 should be made to the medical department, and that an additional guarantee of $20,000 per annum for five years should be secured. This was done, and it was only reasonable that it should be done. Any one who appreciates the commanding influence exerted by the medical department of the University of Pennsylvania will realize that it was essential for the establishment of higher medical education throughout this continent that it should be demonstrated here that such advance could be made and could be maintained with good practical results. As a matter of fact the result of the important change was unexpectedly gratifying. The increased attractiveness of the longer and more practical course of instruction inaugurated outweighed the much greater cost and difficulty of securing the degree. The receipts of the medical school did not fall off; no part of the guarantee fund was called; and the medical faculty cordially assented, by resolution adopted February 20, 1894, to the proposal that my subscription of $50,000 should be applied to the erection and partial endowment of a laboratory of clinical medicine. The board of trustees of the University and the managers of the University Hospital and the medical faculty concurred cordially in approving the conditions connected with the proposed foundation; and I quote the following paragraphs from a communication bearing date of February 24, 1894:

"'That the said laboratory shall be erected in accordance with plans prepared by Dr. Billings, the director of the hospital, and on the site designated by the managers of the University Hospital, and shall be supplied with heat and light from the hospital plant without cost to said laboratory.

"'*Fifth.*—That the said laboratory shall be always styled and designated as the William Pepper Laboratory of Clinical Medicine, it being my intention to hereby create a memorial for my father.

"'*Sixth.*—That the director and assistant director of said laboratory shall at all times be appointed annually by the board of managers of the University Hospital upon the nomination of the professor of the theory and practice of medicine and of the professor of clinical medicine.

"'*Seventh.*—That the purpose of said laboratory shall be to promote the interests of the patients in the said University Hospital by the prosecution of minute clinical studies and original researches, and to advance the interests of science by the publication of the results of such work.

"'It is accordingly stipulated that at no time shall any teaching be given therein to undergraduate students, or to any students except our own graduates or the

graduates of other approved medical schools, whose curriculum is at least of equal length and grade with that of the medical department of the University of Pennsylvania.

"'Provisions will also be made for advanced workers engaged in original research.'

"There seems to be every reason to hope that the building thus constructed upon plans provided by you will prove well adapted for the purpose in view. I desire to take this occasion to express publicly my sincere thanks to you for the unwearying care and cordial sympathy you have extended to the work at every stage and in every phase of its progress. That the restriction of the use of the laboratory to original research and to post-graduate instruction has secured general approval, and has already met a recognized need, may be judged from the fact that nine associates have already received appointments, and have been assigned to distinct fields of original investigation. It is superfluous to observe that the small amount of endowment which I have thus far been able to contribute ($25,000) is wholly inadequate for the maintenance of the work. It has been estimated that to pay the necessary salaries; to provide annual stipends to a certain number of the associates; to supply the costly apparatus required; to issue the numerous publications resulting from the researches therein conducted; to purchase the necessary journals and works of reference; to meet the current expenses, will require the income of an endowment fund of at least $200,000. While I shall reckon it a privilege to supply as much of this sum as my continued professional labors may render possible, I hope it is not unseemly to indicate two directions in which contributions might be made with great effect to promote the work to be here conducted. A fellowship in clinical medicine may be established by a gift of $10,000, subject to the statutes of the University, the income of which would defray the living expenses of the incumbent and would also provide a fair sum to maintain his place in the laboratory. A gift of $5000 would yield income sufficient to meet either one or the other of these objects, as might be indicated by the donor. To any one interested in the study of any special disease or group of diseases, such as tuberculosis or heart-disease or infectious fevers,—all of which destroy so many thousands of precious lives annually,—the advantages of establishing a special research fund must seem obvious. I earnestly trust that such endowments will gradually accumulate around this laboratory. The special trust created would be administered scrupulously by the trustees of the University. The good results would be far-reaching and enduring. It is, indeed, hard to conceive in what way we, whose dearest and most cherished interests will be affected vitally by the results of such researches as will be conducted here, can better display our sorrow for the dead and our love for the living than by strengthening the resources of such institutions as this which is to be opened formally to-day. May it long endure to promote the interests of suffering humanity and to enlarge the boundaries of medical science.

"I beg to remain,

"Your obedient servant,

"William Pepper."

I beg leave, Mr. Provost and gentlemen of the board of managers, in the name of Dr. William Pepper, to present to you and ask your acceptance of this laboratory and its endowment for the purposes named in his letter just read.

Thus far I have been speaking as the representative of Dr. Pepper, but now I have a few words to say in another capacity, speaking as the director of this hospital.

Many gifts of and to hospitals have been made by generous philanthropists in

the United States during the last twenty-five years, and in the list of such givers the names of some citizens of Philadelphia have a prominent place. But this gift is unique in this, that it is made for the specific purpose of promoting and stimulating original research and improvements in methods of diagnosing and treating the diseases of human beings and of giving advanced and special practical instruction in the new methods to post-graduates,—that is, to men who have already obtained the degree of doctor of medicine.

While a few hospitals have rooms set apart for chemical, microscopical, and bacteriological investigations, no hospital, so far as I know, has ever before received a specific gift for the construction and maintenance of a separate building to be devoted entirely to such purposes and to post-graduate teaching of clinical laboratory methods, and I count it as a singularly fortunate thing for this hospital that it should have now been selected as the recipient of such a gift.

One of the great purposes of this hospital, second in importance only to its work in relieving suffering and prolonging life, is the education of skilled physicians and surgeons, and of trained nurses, for the benefit of the people of this city, this State, and this country,—present and to come. This gift emphasizes, and promises powerful aid to, a third purpose, which should always be kept in view in such a hospital as this,—namely, the increase of knowledge for the benefit of the sick and suffering all over the world, whether they be high or low, rich or poor, dwellers in a palace or in a "Hotel Dieu." Moreover, this third purpose not only does not interfere with the first and second purposes to which I have just referred, but it powerfully promotes them, because the best teaching is that which is given in connection with research work, which thus stimulates investigation, accurate observation, and independent thinking on the part of the pupils; and because the most careful and painstaking application of the best known methods of practice is a necessity in a teaching hospital where keen eyes are watching the methods and results.

The medical faculty is responsible to the public and to the medical profession for the quality and quantity of the instruction which it gives, and for the qualifications for practice possessed by the young men whom it indorses by its recommendation for the degree of doctor of medicine. Its standard has always been high, but I feel safe in predicting that in the near future this standard, both for admission and for degree, will be raised still higher, and that in its future work on a higher plane this laboratory will play an important part.

I have yet a few words to say as an individual, and not as an official. The letter of Dr. Pepper which I have read to you needs no comment, and very few words of praise from me are either needful or proper to be spoken to this audience of his friends. Broad and far has been his outlook in thus providing for the future a heritage of power, which mildew, flame, and frost cannot harm. It is not a statue or carving or memorial arch that he has given, things that will blacken and moulder and crumble as the centuries roll by, until the mills of the gods shall have ground them to dust. It is a perpetual wellspring of force, a storage battery which will fill itself and give out warmth and light and motion so long as this institution of learning shall exist on the earth. He says, and says it with authority, find me the means of making the lives of men longer and more efficient,—of putting aside the plague that has destroyed our fathers and brothers and threatens to consume our children; his demand is not for the fruit which is known and harvested, but for that of regions yet unknown and unexplored, for which he provides the seed, for charts of dangerous bays and coast-lines still unsounded and not yet triangulated.

The taking such a step as this requires not only the opportunity of means, but also wisdom, courage, faith; wisdom, as regards selection of the unknown regions to be explored, and in providing motive-power and guidance for the work to be

done; courage, in investing funds in an enterprise the precise results of which cannot be predicted; and faith, in the future progress of science and in the future managers of this important trust.

But wisdom shall be justified by her children, and this far-seeing, bold-planning man of the silver tongue and the open hand will be remembered as the founder of the first distinctive laboratory for research in clinical medicine in this country, so long as there are sickness and death among the children of men.

Remarks of Provost Harrison.

In accepting the gift for the Trustees of the University, Provost Harrison said: Upon such an occasion as this the simplest words are the best; and, indeed, it seems to me that it would be hard to find one more deserving of dignified, simple, and quiet ceremony. My own memory goes fully back to the work of the man taken away in early middle life by the disease dreaded above all others by the Anglo-Saxon race,—the man in whose memory this building has been erected and is to-day dedicated. His eldest son was my classmate in this University; together we were members of the same society; and after he had been graduated I watched him in his too brief career. He fell a victim to the same disease; father and son both cut off in early life. I do not wish to intrude into the sacred circle of home anxiety, but may we not assume that the facts which I now record gave constant rise to anxious thought, and is there any doubt that there has been for many, many years an underlying principle of benevolent activity growing out of the death of father and brother, which is at the last reverently realized here to-day? It must be so; and the deepest satisfaction which all of us can feel must arise from the reflection that through the son who has survived, and who has done this deed of mercy, neither father nor brother would have lived in vain even if they themselves had contributed nothing to benefit the world. May he not now feel that in death he and they are not divided? And as these thoughts arise in our minds will not the most fervent wish of each one of us be that in the providence of God the research work to be conducted here and in this University may find a counter-agent for consumption? Surely that will some day come.

Not long ago, before a great scientific body, its most distinguished officer said that the extent of our knowledge is like a small oasis, surrounded on all sides by a vast region of impenetrable mystery yet unexplored. "Successive generations win a small strip from the desert and push forward the boundaries of knowledge." To advance these outposts many forces of science are at work in this University, which is so dear to us all, and which we all trust may be controlled by that spirit of wisdom which is modest in that she knows no more. The chemist is diligently interrogating nature in her manifold riches. The physicist is studying forces and devising apparatus whereby they may be measured or applied with unerring accuracy. The bacteriologist is penetrating the mysteries of that lowest life which so influences for good or ill all higher forms of life; but here at the last are gathered into one supreme application all that these other sciences have produced,—to relieve or to remove human suffering, to save human life. This is the highest mission to which the discoveries of science can be applied.

The University's duty is not only to maintain and press forward the intellectual and moral standards of the nation, to direct and control its social energies, but to touch life at every point and to help it. The mitigation of suffering, the prolongation of life, the prevention of disease are of its highest functions. In this hospital and in this place may science always come into union with benevolence. May one of the old meanings of the word which describes this laboratory be ever realized

here. May the baptism of life flow out from this place like a spring of living water. May the William Pepper Laboratory of Clinical Medicine be one more instrument in our hands to fulfil the reason for the University's existence, which, in the words of our charter, show that we were "established to be the means through the blessings of Almighty God of raising up men of dispositions and qualifications beneficial to the public, and as an institution of the most essential consequence to the good government of States, to the peace and welfare of society, and to be a public blessing to mankind."

In this spirit the trustees of the University accept the gift.

Address of Dr. W. H. Welch.

Dr. W. H. Welch, of Johns Hopkins University, followed with a very interesting historical account of the inception and growth of scientific study and investigation of the human body, and the evolution of the modern laboratory. There is evidence that in Alexandria, in the third century before Christ, there existed state-supported institutes, in which students of man and nature could come into direct personal contact with the objects of study. Fifteen hundred years elapsed before any further progress was accorded. In 1231, Frederick II. commanded the teachers at Salernum to cultivate the practical study of anatomy. In the latter part of the fifteenth century there developed an active interest in the study of anatomy, which culminated in the work of Versalius, published in 1543.

The beginning of the modern physical laboratory was in 1863, when Magnus opened in Berlin his laboratory for experimental physical research. Since then there has been a rapid development of those physical institutes which are the pride of many universities. Liebig's chemical laboratory was opened to students in 1825. It had the greatest influence upon the subsequent establishment and organization, not only of chemical laboratories, but also of public scientific laboratories in general. Its establishment marks an epoch in the history of scientific education.

Meeting of the University Trustees.

At the meeting of the trustees of the University of Pennsylvania, held on December 4, 1895, Thomas McKean was elected trustee, on the nomination of the Central Committee of the Alumni, to succeed the late Henry H. Houston. Cash contributions were reported for October and November, amounting to $100,552, for which thanks were voted to the donors.

A Bequest of $51,000 to the University Hospital.

By the death of the widow of the late Dr. D. Hayes Agnew the University Hospital becomes the beneficiary of a $50,000 bequest, willed by Dr. Agnew, who left it "to the trustees of the University of Pennsylvania for the use of the hospital, to be invested by the proper officers of the University, and the income collected and applied to the use and benefit of the inmates of the hospital." In addition to the above amount Mrs. Agnew has bequeathed $1000 to the Maternity Hospital of the University.

The Howard Houston Hall, the undergraduate club-house of the University of Pennsylvania, will be formally opened on the evening of January 6, 1896. The building is of gray stone, in contrast to the green of the other buildings on the campus. The Houston Hall Club will be formally organized on the evening of December 17 in College Chapel.

Dr. James K. Young, Class of 1883, has been elected professor of Orthopedic Surgery in the Philadelphia Polyclinic, and clinical professor of the same in the Woman's Medical College.

Necrology.

Dr. Willard L. Maris of the Class of '95 died in Philadelphia on December 11, 1895. Dr. Maris was returning from a course of study abroad, and was attacked with typhoid fever on board the vessel, from which he was taken to the German Hospital, where, after a further illness of eleven days, he succumbed to the disease. He was to have gone on duty as resident physician to the German Hospital on the 1st of January.

Testimonial to John S. Billings, M.D., LL.D.

The American contributors to the Billings' Testimonial met at the Hotel Bellevue, Philadelphia, November 30, 1895. Addresses were made by Drs. S. Weir Mitchell, J. M. Da Costa, J. R. Chadwick, Robert Fletcher, A. Jacobi, and William Osler. The testimonial consisted of a silver box which contained a check for $10,000, and which had engraved upon it, "To John S. Billings, from 259 physicians of the United States and Great Britain, in grateful recognition of his services to Medical Scholars."

EDITORIAL.

THE RELATION BETWEEN PLEURISY AND TUBERCULOSIS.

The relation existing between pleurisy and tuberculosis has for a long time attracted considerable attention. It is observed that pleurisy frequently follows fully-established phthisis, and that phthisis in many instances develops after an apparently cured pleurisy. Of ninety cases of acute pleurisy treated by Henry Bowditch, of Boston, between 1849 and 1879, thirty-two died of or had phthisis (Osler's "Practice of Medicine," 1892). These clinical observations are confirmed by post-mortem records. In the Shattuck Lecture for 1893 (*Boston Medical and Surgical Journal*, July 20, 1893), Osler stated that an analysis of the post-mortem records of 101 successive cases from the wards of the Johns Hopkins Hospital in which pleurisy was found showed that thirty-two, or nearly 32 per cent., were definitely tuberculous.

When pleurisy and tuberculosis of adjacent structures coexist in the same patient it is generally admitted that the one may hold one of four relations to the other: (1) the pleura may have been involved simultaneously with the other structures in the tuberculous process; (2) a primary tuberculous pleurisy may have infected secondarily adjacent organs, such as the lung; (3) primary tuberculosis of the lung or bronchial glands may have excited a pleurisy; (4) a primary, non-tuberculous pleurisy may have so reduced the resistance of the lung that the latter became a favorable soil for the development of phthisis. In many cases the tuberculous nature of the pleurisy is apparent, the disease being undoubtedly secondary to advanced tuberculosis elsewhere, as in the lung, bronchial glands, peritoneum, or Fallopian tubes. In other instances, however, what appears to be a simple primary pleurisy is followed sooner or later by the symptoms of pulmonary tuberculosis. In the latter group of cases the initial lesion, generally in the lung or thoracic lymph-gland, may have been so small as to escape detection, or the pleurisy may have been primarily tuberculous, or the phthisis may have resulted from injury to the lung induced by a simple pleurisy. The last view, although not unreasonable, has little but tradition to support it. The view that pleurisy, apparently simple or idiopathic, is most frequently caused

by tubercle-bacilli which have invaded the pleura directly, or have gained access through the medium of an unrecognized tuberculous focus elsewhere, although asserted by many competent observers, has been criticised on the ground that most patients with acute pleurisy are completely restored to health, and that, moreover, a bacteriological examination of the pleuritic exudate rarely reveals the bacilli. These objections, however, lose much of their importance when it is remembered that tuberculosis has not the same fatality in all parts of the body. Patients with tubercular adenitis, osteitis, or peritonitis frequently recover. Again, tubercle bacilli are rarely discovered in the exudate of pleurisy known to be tuberculosis. Of nine cases of serous pleurisy studied by Ludwig (*Deutsche Archiv für klinische Medicin*, Vol. L, 1893) two were caused by pneumococci, two by staphylococci, and five were free from bacteria. Of the last, however, four were tuberculous.

Recently an important contribution to the subject under consideration has been made by Eichhorst (*Correspondenzblatt für Schweizer Aerzte*, No. 13, 1895). This observer, in order to prove conclusively that pleurisy is often excited by tubercle bacilli, made a series of experiments on guinea-pigs, injecting into the abdominal cavity of the animals one cubic centimetre of the exudate from every case of serous pleurisy. After six or eight weeks the animals were killed and their organs critically examined. Of the eleven animals inoculated only one developed glandular tuberculosis. As one animal, however, remained healthy after being inoculated with the serum of a patient who had pronounced pulmonary tuberculosis following shortly after an attack of acute pleurisy, the author concluded that the experiments were faulty in that he had not injected a sufficient quantity of the serum. A second series of experiments was, therefore, undertaken, the exudate being obtained from twenty-three patients who had been in good health when they acquired the pleurisy and in whom no tuberculous lesions could be detected after the most careful examination. In the later experiments fifteen cubic centimetres of the serous exudate were injected into each guinea-pig, and as a result fifteen of the twenty-three animals, or 65.2 per cent., developed tuberculosis, while only eight, or 34.8 per cent., remained healthy. These results indicate that nearly two-thirds of all cases of acute serous pleurisy are of a tuberculous nature. Eichhorst believes that in most instances tuberculous serous pleurisy has its origin in tuberculosis of the bronchial glands. These experiments not only throw light upon the etiology of pleurisy, but also suggest an aid to diagnosis in obscure cases, especially when the nature of the disease is not indicated by the history, method of onset, clinical course, character of the fluid, or by bacteriological examination.

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.,

ASSISTED BY

M. HOWARD FUSSELL, M.D. AND A. O. J. KELLY, M.D.

Esophagoscopy.

Rosenstein (*Berliner klinische Wochenschrift*, No. 12, 1895) has had constructed an esophagoscope, which consists essentially of a smooth, thin metal tube of from eleven and a half to thirteen millimetres in diameter, to which, after introduction into the esophagus, an electroscope is connected. Personally he has examined about fifty patients. The easy introduction of the instrument presupposes some experience, but it is possible with all patients. Esophagoscopy should be practised after the patient has been fasting some time, or after lavage of the stomach. An ordinary stomach-tube or bougie of from ten to twelve millimetres in diameter should be first introduced to determine the presence or absence of an obstruction, and in case such exist, its distance from the teeth should be measured. The pharynx and upper part of the esophagus is to be cocainized, and the patient placed on a table with his head resting in the hands of an assistant and projecting over the edge. The tube is then readily introduced. He usually employs a tube of forty-five centimetres in length. The length of the esophagus, however, as he demonstrated on a large post-mortem material, varies in different subjects, and of necessity should, therefore, the tube. To determine the distance from the teeth to the cardiac orifice of the stomach, one measures the distance from the spinous process of the second thoracic vertebra (level of the dorsum of the tongue) to the point of junction of the right twelfth rib with the twelfth thoracic vertebra (point of junction of the esophagus and stomach), from thirty-four to forty-one centimetres. To this is to be added seven centimetres,—distance from the posterior part of the tongue to the teeth. The gradual withdrawal of the tube permits of the inspection of the esophagus in its entirety. Esophagoscopy is contra-indicated in all conditions in which the introduction of any instrument into the esophagus is contra-indicated,—cardiac valvular disease, arterio-sclerosis, marked emphysema, cirrhosis of the liver, etc. In certain conditions—deformities, lordosis—it is impossible. Esophagoscopy is of diagnostic, prognostic, and therapeutic importance. He does not discuss these subjects, but remarks that it renders possible differential diagnosis between hysterical and organic obstruction of the esophagus; between cicatricial and malignant stenosis. The early diagnosis of malignant disease may be made by the removal through the tube and subsequent examination of a piece of the suspected tissue; dilatation of strictures may be made on sight and foreign bodies readily removed.

Suppurative Joint Lesions of Scarlet Fever.

Smith and Sturge (*Lancet*, November 16, 1895) report nine instances in which suppuration of the joints occurred out of a series of nearly 5000 cases of scarlet fever. The patients ranged in ages from 1¼ years to 16 years. In seven of the cases the affection was non-articular, in two polyarticular. Both of the latter and one of the former died. Seven joints were affected in the upper extremity as compared with five in the lower, the elbow being the seat of trouble in three cases, the knee and hip in two cases each and the ankle and sterno-clavicular joint one each. From personal experience they noted three types of joint condition: (1) cases where flail-joint and dislocation followed absorption of fluid effusion into the joint. (2) Cases in which there exists considerable edematous swelling around the joint and a variable amount of pain on movement. On incising the joint, thick, creamy pus escapes. The synovial membrane is thickened, showing in some cases petechiæ. The cartilages do not show to the naked eye any signs of erosion. (3) Much more virulent condition. The inflammation is peri- and intra-articular. From the interior of the joint a thin, purulent fluid is obtained, and the joint capsule softened by the inflammation, very soon after the onset permits of undue mobility. The ends of the bone are more or less extensively denuded of cartilage and rough. The onset of the suppurative joint lesions seems to be commonly about the third or fourth week of the disease, more or less coincident with the development of nephritis; both lesions are probably expressive of the same general poisoning of the septum. There existed no marked cardiac lesions. Usually disassociate cases in which the ordinary serous arthritis of scarlet fever (scarlatinal rheumatism, so-called) passes on to suppuration, from cases in which the affection of the joint is purulent from the commencement. In some cases inflammation of the pharyngeal and cervical tissues is most marked and is evidently the source of infection. There is sometimes found, in fatal cases, thrombosis of the internal jugular vein. Another method of infection is by the extension to a joint of a periarticular abscess. With regard to results, ankylosis need not result even when the inflammation is so severe as to cause relaxation of ligaments and denudation of the bone ends. In addition to early and prompt surgical treatment consisting of free incision and drainage, particular stress is laid upon the advantage to be gained by prolonged immersion of the joint in a warm boracic bath. During any intervals between the baths hot boracic fomentations are preferable to dry dressings. Nasal feeding is in some cases essential in order to combat the exhaustion of the patient, and may often be employed as an easy way of giving *extra* food in cases where the patient is exhausted by the efforts of taking food by the mouth.

Two Consecutive Attacks of Scarlet Fever.

Sequeira (*British Medical Journal*, November 16, 1895) reports the case of a boy, aged 5 years, taken suddenly ill with all the symptoms of scarlet fever. It ran a moderately severe course, and desquamation began about the ninth or tenth day and continued until the eighth week. At the tenth week, having apparently recovered, following exposure to inclement weather, he again manifested all the symptoms of scarlet fever. This attack ran a more severe course than the first one; desquamation began about the end of the first week and continued until the eighth. The case is of interest from the somewhat rare occurrence of second attacks of scarlet fever, and in the fact that the rash in the second attack was both present and well marked, and desquamation as perfect and characteristic as in the attack which immediately preceded it. The kidneys remained apparently unaffected.

Pneumothorax without Perforation.

Levy (*Archiv für experimentelle Pathologie und Pharmakologie*, Vol. xxxv, Parts 4 and 5, 1895) reports a case, as rare as interesting, of spontaneous development of gas in a pleuritic exudate. The patient was a male, aged 48 years, previously healthy. During the course of two months he was aspirated five times for the relief of a large recurring serous pleuritic exudate. A week following the last puncture there occurred marked signs of pneumothorax, which progressed. Aspiration was again resorted to, and later resection of a rib, on both occasions cultures being prepared from the exudate,—aërobic and anaërobic bacteria being sought for. Death occurred one month after the development of the pneumothorax. The autopsy revealed a caseous focus in the lung apex, miliary tubercles on the peritoneum, nowhere any indication of a previous perforation into the pleuritic cavity. The bacteriologic examination of the fluid in anaërobic culture revealed a thick, plump, immobile bacillus, which give rise to a plentiful development of gas, and was pathogenic for guinea-pigs. This bacillus was first described by Levy, who discovered it in a parametric gas abscess, and was later investigated by Fränkel, who found it in four cases of gas phlegmon. In the present case the supposition is that there first occurred a purely serous, probably tubercular, pleuritis, which at the end of two months suddenly changed to a pneumothorax, this change being due to the above-named bacillus, but how it effected its entrance into the system is inexplicable.

Polymyositis Subacuta Suppurativa.

Neumann (*Deutsche medicinische Wochenschrift*, No. 24, 1895) reports the case of a boy, aged 9 years, who, as a consequence of diphtheria and measles, developed an otitis media serosa sinistra; later there occurred pemphigus simplex and purpuric spots confined to the left side of the body; inflammation of the kidneys; and, accompanied by high and continued fever, painful inflammation of the muscles of the left leg, of those in the region of the sacrum, of those of the left upper arm, and, finally, of those of the left buttock and thigh. Conjointly there occurred numerous abscesses confined to these muscles of the left side of the body; some periarticular. Excepting a slight transitory inflammation of the left hip and knee, the joints remained unaffected. Transitory also was an inflammation of the muscles of the pharynx and of the neck; likewise a bronchitis. Excepting an aural furuncle, there were no symptoms of any moment on the right side of the body; the muscles were slightly tender, all the joints unaffected. To be remarked were the profuse perspiration and increased cardiac action. Bacteriologically and microscopically streptococci were demonstrated. These evidently effected their entrance into the body *via* the tonsils, and are to be looked upon as the cause of the entire affection. Three and a half months after the beginning of the disease the patient was entirely well, excepting the middle ear catarrh. The treatment in addition to evacuating the pus as it formed was supportive and symptomatic.

Aphasia with Left Hemiplegia.

Bell (*Montreal Medical Journal*, October, 1895) reports the case of a male, aged 30 years, the subject of aortic and mitral insufficiency, first seen because of symptoms suggestive of embolic infarction of the spleen. Ten days later the patient became suddenly paralyzed on the left side and completely aphasic. He remained conscious and died rather suddenly two days later. The patient was left-handed. There was no autopsy.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

G. G. DAVIS, M.D., M.R.C.S., AND ELLWOOD R. KIRBY, M.D.

Stone in the Bladder.

Christopher Heath (*British Medical Journal*, 1895, Vol. 1, p. 1189), in a clinical lecture on stone in the bladder, gave his views as to its treatment. He refers to Liston's operating before the use of anesthetics. He was a rapid operator and somewhat rough. Following him came Sir William Fergusson, who was more deliberate and equally successful. Then came Sir John Erichsen, who was also an excellent lithotomist, and he was followed by Sir Henry Thompson, whom he regards as the greatest living authority on stone. His attention was mostly given to lithotrity, though he did many cutting operations by the perineal route, by the lateral or median method. Heath remarks that since the introduction of Petersen's inflator no other lithotomies have been done in the University Hospital except by the suprapubic method. He states that he knows Sir Henry Thompson has had a large success with it in private practice. Mishaps are not so apt to occur as in the perineal operation. He has seen one or two tragedies from the latter, and mentions the opening of the abdominal cavity by one surgeon and another abandoning operating on stone entirely by a mishap occurring in his first case. Following the lead of others, Heath, of late, has done no other except the suprapubic operation when the stone is too large to crush with the lithotrite. The suprapubic method is much easier and requires no skilled assistant. It seems so thoroughly to have established itself among surgeons that one may reasonably look forward to its being the operation of the future.

Multiple Aneurisms of the Same Side.

Souchon (*New York Medical Journal*, November 2, 1895, p. 545) reports the case of a man, aged 43 years, with two aneurisms of the left thigh, one, the size of an egg, at Scarpa's triangle and the other, as large as a cocoanut, at the opening through the adductor magnus. After trial of digital compression, Esmarch's bandage and Massachusetts General Hospital compressor, the superficial femoral was ligated in the middle of Scarpa's triangle with a double contiguous kangaroo ligature without rupturing the coats of the vessel. Suppuration of the wound with secondary hemorrhage occurred. The wound was enlarged and the bleeding upper end tied with silk. Pulsation in the lower aneurism stopped, but returned in the upper. Hemorrhage again occurred, which was stopped by tying both bleeding ends.

After a long convalescence, in which the lower sac was opened and the clots removed and a reopening of the upper wound to remove a silk knot, recovery occurred. In another case the author would not use compression, as in case operation was required it would have to be done through bruised tissues. The ligature should be applied as close to the sac as the condition of the artery would allow. Should this fail, extirpation of the sac, with or without the use of the Esmarch bandage, is the next thing in order. In cases of high femoral aneurisms a provisional ligature should be applied to the artery. In two cases in which the common femoral or

external iliac artery was ligated death ensued. The suggestion is offered as to whether it would not have been better to have extirpated the upper aneurism rather than to have ligated? This would have cured both aneurisms at once.

An elaborate history of the various cases on record is appended, and the author's case is the only one on record of cure of double aneurism of the superficial femoral artery by any operative procedure.

Retrograde Catheterization.

Pacheco Mendès (*Annales des Maladies des Organes Génito-Urinaires*, September, 1895, p. 800) gives the details of two cases in which for impermeable urethral stricture he opened the bladder above the pubes and passed a sound from behind forward. The first case was that of a man, aged 49 years, with strictures along the urethra and a perineal fistula. It was found impossible to enter the bladder through the urethra, so the former was opened above the pubes and a sound passed into the urethra. It was brought out at the perineum and the bladder was closed. After ten days an abscess formed in the abdominal wound and some of the scrotum sloughed. The patient recovered from this and then an internal urethrotomy was done, and a catheter introduced into the bladder and left for twenty days. Recovery was perfect. The second case was that of a man, 45 years of age, who also had an impermeable stricture with perineal fistulæ. Retrograde catheterism was resorted to and the bladder sutured immediately, the edges being first sewed with catgut and then inverted with Lembert sutures of fine silk. This patient had primary union of the abdominal wound, notwithstanding that he got out of bed six times on the day of the operation to go to the water-closet.

Treatment of Chronic Blennorrhagia.

Menahem Hodara (*Annales des Maladies des Organes Génito-Urinaires*, August, 1895, p. 697) advises the following in the treatment of gleety discharges from the urethra:

(1) One should begin to dilate the urethra as soon as possible, but not until all the acute symptoms have subsided, say two to three months after the onset of the affection.

(2) It is important to differentiate between a posterior urethritis and an anterior urethritis.

(3) If, while there is an anterior urethritis, there is also a posterior urethritis present, then the posterior urethra should be washed out with injections of nitrate of silver 1–2000 to 1–3000. Dilatation is to be alternated with the injections.

(4) If the posterior urethritis is not cured by the above injections, then a local application is to be made of 1–100 nitrate of silver.

(5) In subacute cases, if success is not rapidly obtained in two or three dilatations, the case will be a long one, because of the presence of infiltrations. In such cases dilatation is suspended for four weeks, during which the washings with the nitrate of silver are used. The dilatation is to be carried to No. 40 or 45 Charrière scale.

(6) In cases of chronic urethritis with mixed infiltrations, if dilatation is followed by an increased amount of discharge, it is indicative of a quick cure.

(7) In chronic cases with hard infiltrations the course is long and the secretion is diminished by dilatation.

(8) Cases not cured by the above are to be treated urethroscopically.

Thus, a catarrhal condition of the crypts of Morgagni is to be treated by electrolysis of these crypts or an incision of their orifices by means of small knives through the urethroscope. Hard, cicatricial, indurated spots are to be scarified in like manner. The urethroscope is necessary to treat these cases satisfactorily.

The Use of Vinegar to Prevent Vomiting after Chloroform Inhalation.

Lewin (*Revue de Chirurgie,* September, 1895, p. 786) states that he has used his method for the prevention of vomiting after chloroform anesthesia in 174 cases. These embraced all kinds of operations. In 125 success was complete. In the remaining 49 cases vomiting occurred, but it was slight in amount and consisted mostly of glairy mucus. It usually occurred towards evening of the day of operation and ceased by nine o'clock the next morning. The infrequency as well as mildness of the vomiting constituted a practical success, because under the usual chloroformization he has seen vomiting last three days.

Some of the patients vomited because the use of the vinegar cloth was not continued a sufficiently long time.

The following is the method of procedure: A piece of linen the size of a napkin is wet with ordinary vinegar; the surplus vinegar is wrung out and the cloth laid over the chloroform inhaler. This latter is then withdrawn from under the cloth without removing it. This is to prevent the patient respiring air which has not been impregnated with the vinegar vapor. The cloth should remain on the face as long as possible, and at least three hours. Should the cloth become dry by the evaporation of the vinegar it should be again moistened. Should the patient desire to expectorate, a cloth or handkerchief is to be slipped beneath the cloth wet with the vinegar. The author claims that it is the sudden inspiration of pure air that causes nausea.

Laparotomy in Tuberculous Peritonitis.

Mannolli and Baccocclei (*Gaz. degli Osped,* No. 51, 1895), as the result of an experimental study of this subject, conclude that laparotomy undoubtedly has a beneficial influence upon tuberculous peritonitis even in the lower animals. In certain cases in which laparotomy succeeds it should be repeated, if necessary. The involution of tuberculous nodules after laparotomy is, as a rule, rapid, but there generally remain some foci which disappear much more slowly, so that we ought to be cautious in speaking of an absolute cure. The beneficial effects of laparotomy do not seem to be materially increased by washing out the peritoneal cavity with sterilized water or antiseptic solutions. In addition to the immediately beneficial effect laparotomy may hinder the secondary localization of tuberculosis. The operation sets up an inflammatory reaction of the peritoneum, accompanied by the noteworthy increase in its absorbing power, phagocytosis, degeneration of the cellular elements, connective-tissue formation, and vascularization of the tuberculous nodules, with successive fibrous transformation. The authors recommend comparatively early operation in man, not only for the immediate good effects, but to prevent further spreading.

Treatment of Varicocele.

Dardignac (*Revue de Chirurgie,* September, 1895, p. 721) describes his operation for the cure of varicocele. It is a modification of the well-known operation of Henry, of shortening the scrotum. Instead of applying his compressors longitu-

dinally, they are applied laterally. The testicles are elevated out of the way and so held by an assistant. The lower portion of the scrotum is then spread out laterally, and each half compressed from the side to the median raphé by a long forceps. These forceps have attached to them an additional blade or guard running parallel to the other two and a short distance from them. Numerous sutures of silkworm gut are then passed by means of a Reverdin or other needle close to the jaws of the forceps and between them and the guard. Without loosening the forceps the redundant scrotum is cut away beyond the guard. This latter is then removed, thus leaving a considerable portion of tissue, through which the sutures pass, projecting beyond the forceps. These sutures are then all tied and the clamp removed. The same procedure is carried out on the opposite side. Thus, on the removal of the forceps there is no bleeding and the operation is practically bloodless. The sutures are placed close together, two to the centimetre. A line of sutures is thus left, which extends transversely from one side of the scrotum to the other and situated well down towards the perineum. This operation he prefers to the excision of a longitudinal strip or to excision of the veins, as does Bennett.

Castration for Hypertrophied Prostate Gland.

Wossidlo (*Centralblatt für die Krankheiten der Harn und Sexualorgane*, Band VI, Heft 5, 1895) has collected statistics on this subject, and finds forty-three cases successfully operated upon, the ages of the patients ranging from 60 to 81 years. Before operations in all there was great difficulty in emptying the bladder, and more or less severe cystitis. In all of the forty-three cases the castration was bilateral, and an improvement in the cystitis and micturition always resulted, in most cases immediately after the operation. In a great number of cases patients could discard the catheter entirely, and hold their water for some time. In all cases there was a shrinking of the enlarged gland. Comparing the operation of castration with other radical methods, he finds it has the advantage of being less dangerous and more easily carried out, although several fatal cases show that the operation is by no means devoid of danger. Still, up to the present time such cases are few as compared with the successful results, and time alone will show whether bad results occur often enough to discredit the procedure. As regards the results of unilateral castration, the reported cases are too few and contradictory for any conclusions to be drawn from them.

THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D., AND ARTHUR A. STEVENS, M.D.

Oxygen in Diabetes.

Ascoli (*Il Policlinico*, VI, 14, 1895) obtained good results from oxygen inhalations in a case of diabetes occurring in a man aged 60, in whom the disease had existed for two years. The symptoms growing worse under the ordinary method of treatment, oxygen inhalations were employed. From March 7, 1895, to June 16, 1895, with the exception of one week in May, 180 litres of the gas were inhaled

daily, the patient all the while observing the usual dietetic restrictions. Under this treatment the urine speedily diminished in amount, the specific gravity fell, and the sugar was reduced to 1 per cent. In less than two months the sugar completely disappeared. At the end of three months there was no return of the sugar, even after a full meal of carbohydrates. Under the treatment there was also a gain of 2500 grammes in body weight.

Pilocarpine in Diseases of the Lymph-Glands.

Waldstein (*Berliner klinische Wochenschrift*, No. 32, 1895), having demonstrated that subcutaneous injections of pilocarpine were followed by a distinct increase in the number of leucocytes, and that the drug exerted no local irritation, determined to try the remedy in lymphatic enlargements. The results were highly successful in the inflammatory enlargement of the lymph-glands accompanying scarlet fever and measles in children. One part of pilocarpine hydrochlorate was dissolved in 400 parts of water, and of this solution, sixteen minims (one-twenty-fourth of a grain) constituted a dose. This amount, the author claims, can be given daily for a week or ten days to children 3 years old, and seldom causes salivation or sweating. In some cases the daily amount for children of 3 years or under may be increased to one-twelfth of a grain. In a case of multiple lymphoma, and in a case of lupus of the hand the remedy gave good results. In the latter, however, it was impossible to predict a positive cure.

Pilocarpine in daily doses of one-fiftieth to one-twelfth of a grain was also used in seven cases of streptococcus angina in children ranging from 3 to 18 years. All recovered, and in only one case did the drug cause sweating and salivation.

The Treatment of Coryza attending the Administration of Potassium Iodide.

Cohen (*Lancet*, No. 3750, 1895) believes that the coryza, sore throat, and frontal headache attending the administration of potassium iodide are due to the action of free iodine, the latter being secreted by the salivary glands, or liberated from the salt in the mouth after its secretion. The latter view is supported by Schmeideberg, who showed that potassium iodide in the presence of carbonic acid is decomposed, the latter being abundant in the expired air in the region of the salivary glands. In three well-marked cases of iodism the catarrh was successfully checked by adding to the mixture, which consisted of ten grains of potassium iodide in half an ounce of water, five minims per dose of the tincture of belladonna.

The Therapeutic Action of Iron.

E. Reinert (*Wiener medicinische Blätter*, April 25) criticises the theories advanced at the recent Kongress für innere Medicin, held at Munich, by Bunge, who made experiments by giving inorganic preparations of iron to animals, and found that it reappeared *in toto* in the feces. If organic preparations were used they were absorbed, but he doubted if they were assimilated. He therefore came to the startling conclusion that the results of treatment by iron must be referred to the domain of suggestion, and would substitute a diet rich in iron, particularly meat, eggs, spinach, etc., for the usual method of administration. Reinert advances the following facts against these conclusions:

(1) *A priori* we should expect a difference in relation to the absorption and

assimilation of iron between a healthy and a chlorotic subject, where much of the normal iron is lost with the hemoglobin, and Reinert is not acquainted with an idiopathic chlorosis in the animals experimented on analogous to that occurring in man.

(2) Bunge's experiments were all made on animals, and he neglects those made by others on the human subject. In the Tübingen Clinic experiments were made with chlorotic girls, who were placed for weeks under the best hygienic surroundings, with excellent food and plenty of rest in bed, but only had a quinine mixture for medicine. The percentage of hemoglobin in the blood rose very little in several weeks. When, however, an organic iron (Blaud's pills) was given, the percentage rose rapidly. Similar experiments with like results have been made by Von Ziemssen.

(3) The part played by other therapeutic factors in the treatment of chlorosis is doubtful, but out-patients usually quickly recover when iron is given (unless the hemoglobin has fallen below 40 per cent. of the normal) while pursuing their usual callings, and without special change of diet.

(4) The diagnosis of chlorosis must always rest on an examination of the blood. Omission to do this accounts for some apparent failures in cases treated by iron.

(5) Lastly, all so-called specifics, for example, mercury or quinine, fail in isolated cases.

Thymus Feeding in Goitre and Exophthalmic Goitre.

Miculicz (*Berliner klinische Wochenschrift*, No. 16, 1895) has treated ten cases of goitre, one of exophthalmic goitre, with thymus gland. The age of the patients with goitre ranged between 13 and 28 years. From ten to fifteen grammes of raw sheep-thymus were given on bread three times a week, the amount being gradually increased to twenty-five grammes. These doses produced no untoward symptoms. In one case, the goitre being small and of short duration, complete recovery was effected within two weeks. In six cases there was a marked reduction of the tumor. Two cases showed slight improvement, while in one the remedy was without effect. It was also observed, as in thyroid feeding, that most of the improvement occurred within the first two or three weeks. Cases of diffuse hyperplasia of the gland in the young are most quickly influenced by the treatment. Unlike thyroid gland, thymus gland causes no disagreeable symptoms.

In the case of exophthalmic goitre, which occurred in a woman 44 years old, and in whom there was great danger of suffocation, the use of the thymus gland was followed by marked improvement.

Action of Caffeine on Blood-Pressure.

Dr. Gaetano Vinci (*Archivio di Farmacologia e Terapeutica*, Vol. III, Fasc. 8, August, 1895) gives the results of a long series of experiments in the Laboratory of Experimental Pharmacology of the Royal University of Messina. In all cases he reports a rise of blood-pressure, no matter how the drug was administered, by the mouth, hypodermically, or intravenously, with a consequent fall of pressure only in rabbits. In dogs and rabbits subjected to repeated bloodlettings, there was a constant rise to the normal, and often far above. Its similar effects could be obtained only with digitalis and the drugs belonging to its group in pharmacology.

In dogs suffering from inanition there was a constant elevation of blood-pressure proportionate to the weakness of the animal, except in cases where the lowering of vital forces had gone so far as to affect the heart muscle.

The action of the drug was always manifested promptly and remaining; with successive doses there was always a new increase of pressure, but less marked.

The author strongly commends the use of caffeine in disorders of the heart where compensation has been disturbed. [Translated by Dr. James J. Walsh.]

Chlorides of Sodium and Potassium in Metabolism.

Dr. Angelo Pugliese (*Archivio di Farmacologia e Terapeutica*, Vol. III, Fasc. 7, July, 1895) gives the following as his ultimate conclusions from a series of experiments made in the Laboratory of Physiology of the University of Sienna, on the action of the chlorides of sodium and potassium on metabolism.

(*a*) Chloride of sodium in doses of 0.23 gramme; 0.25 gramme; 0.27 gramme; 0.5 gramme (four to eight grains) to the kilogramme.

(1) Has in the dog no diuretic action.

(2) Causes an increase in weight.

(3) Raises the coefficient of digestibility of protein.

(4) Lessens nitrogenous metabolism.

(5) Leads to a retention of the sodium salts on the part of the tissues while bringing on an increased elimination of potassium.

(6) Does not modify the elimination of the phosphates.

(*b*) Chloride of potassium in doses of 0.25 gramme (about four grains) to the kilogramme seems to have only a diuretic action.

(*c*) The chlorides of both sodium and potassium, in doses of 0.25 gramme; 0.50 gramme (four to eight grains) per kilogramme, cause increased metabolism and hasten interchanges in the tissues. When given together, an increased elimination of sodium is soon noticeable in the urine, while there ensues an accumulation of the potassium salts in the tissues.

(*d*) Sodium is then, in all probability, a moderating factor in metabolism, while potassium is an exciting factor.

The conclusions are practically the same as those drawn from a former set of experiments, but they have been amply confirmed by the additional observations. In the last experiments kalium and natrium were always administered together, and their effect upon the elimination and accumulation of each other was made clear. [Translated by Dr. James J. Walsh.]

Liebreich's Cure for Tuberculosis.

A series of experiments, reported in *Bulletin. della reale Accad. med. di Roma*, Anno IV, Fasc. 6, with Liebreich's cure for tuberculosis—viz., the injection hypodermically of cantharidate of potassium—leads to the following conclusions:

(1) The injections are very painful and the pain is only partly prevented by cocaine.

(2) Doses of 0.0001 milligramme are not dangerous, but doses of 0.0002 milligramme are distinctly so, and for that reason should be used only in advanced cases, the patient being kept under careful observation, especially as regards the uro-genital functions and the chemical and physical properties of the urine.

(3) The injections are positively contra-indicated in very advanced cases of pulmonary tuberculosis.

(4) In incipient tuberculosis the remedy seems to relieve the cough, to make expectoration easier, and to modify for the better the condition of the bronchial

mucosa. The night-sweats and the general condition are also improved at this stage of the disease.

(5) The remedy has no influence upon the course of the fever, nor the exhaustion; these remain unchanged.

(6) Liebreich's "cure" always acts harmfully on patients who are troubled with hemoptysis. They grow worse almost invariably and the hemorrhages very easily recur under the influence of the remedy.

(7) Tubercular ulcerations of the larynx remain unchanged, unless they are just beginning when they show some tendency to clear up and granulate.

(8) No influence is exerted on the number of bacilli expectorated from the lungs.

(9) The injections easily give rise to annoying, sometimes serious, disturbances of the uro-genital apparatus, dysuria, hematuria, albuminuria, and to the presence of renal casts in the urine.

On the whole, Liebreich's method of cure is too often harmful and too seldom beneficial for its problematic advantages in certain cases ever to lead to its general introduction. [Translated by Dr. James J. Walsh.]

OBSTETRICS.

UNDER THE CHARGE OF

BARTON COOKE HIRST, M.D.,

ASSISTED BY

RICHARD C. NORRIS, M.D., AND FRANK W. TALLEY, M.D.

Breech Presentation; Rupture of the Child's Perineum by the Midwife.

Sawicky (*Przeglad Chirurgiezny*, Vol. II, Part 3, 1895) describes a breech delivery conducted by a midwife who mistook the presentation for a vertex. After a few hours the child was delivered, the breech coming first. A rupture of the perineum was detected. A month later Sawicky was consulted, as the child suffered from incontinence of urine and feces. There was the usual eczema, with cystocele, cicatrization of the perineal rent, a very patulous vaginal opening, and light prolapse of the rectum. The anus was involved, the rent extending through the external sphincter. The eczema was cured and the parts then repaired by Tait's operation. The anterior part did not unite, so the vulva still gaped while the posterior part of the perineum and the anal ring assumed their normal condition. The incontinence of feces and urine was cured.

Laceration of the child's perineum occurs sometimes in breech presentations through the child's anus being mistaken for the mother's os uteri, and dilated in consequence by the finger of the midwife, as was the fact in this case.

Uncontrollable Vomiting of Pregnancy.

Benefin (*Der Fraüenarzt*, September, 1895) has successfully treated uncontrollable vomiting of pregnancy by faradization of the vagi before or after meals.

Placental Circulation and Morphinomania.

Bureau (*Report Universal d'Obstétrique et de Gynécologie*, August 25, 1895) attended a patient who, for seven years, had taken morphia and at the time of his attendance was taking fifteen grains daily. She was in her fourth pregnancy, during which she spontaneously gave birth to a child with talipes of one foot. As the cord was divided, Bureau collected the blood of the placenta and umbilical vessels, in which, on chemical analysis, morphine was detected.

Slow Pulse in Childbed.

Neumann (*Monatschrift für Geburtshülfe und Gynäkologie*, October, 1895) publishes his observations of the pulses of 500 women during the puerperium. According to Blot and other observers, bradycardia in the normal puerperium is due to an increased arterial tension and blood-pressure, owing to the sudden diminution of the uterine circulation. Olshausen believed it due to the absorption of fat from the degenerate uterus. Löhlein referred it to a disturbed innervation from an altered constitution of the blood. Swiecicki traces this alleged disturbance to chemical irritation of the uterine nerves as a part of the process of involution, which irritation in turn influences the vagus. Fritsch attributes the bradycardia to the mental and physical rest involved in normal labor. Schröder argues that after the suppression of fetal circulation, the maternal heart, having less to do, contracts more slowly. Vejas considers the phenomenon in question due to an increased vital capacity of the lungs. Neumann concludes that puerperal bradycardia depends on stimulation of the cardiac inhibitory fibres, and arises through irritation of the vagus centre during labor.

Casein in Woman's Blood.

Wröplewski (*Centralblatt für Gynäkologie*, No. 32, 1895) has made researches into the comparative properties of casein in woman's and casein in cow's milk. The casein differs in the two kinds of milk. In woman it contains less carbon, nitrogen, and phosphorus, but more hydrogen and sulphur. The solubility in the casein differs, and different chemical changes go on when cow's or woman's casein is submitted to gastric digestion.

Heart-Disease in Pregnancy.

Rivière, of Bordeaux (*Gazette Hebdomadaire de Bordeaux*, June 30, 1895), holds that in pregnancy with heart-disease the sole thought should not be given the heart. The state of the heart may be relieved by watching and treating the kidneys, the skin, the intestines, and the lungs, and asphyxia and intoxication be prevented and time gained. Even if the mother cannot be saved, the child will thus have the best possible chance for life. Rivière considers the child of real importance, and that when the mother is affected with an incurable cardiac trouble the pregnancy should be allowed to go on as long as possible, even to term, on account of the great risk at the moment of delivery, whether spontaneous or induced. Artificial labor is rarely indicated in a pregnant woman in whom the cardiac symptoms have ended or are about to end in asystole. Venesection acts more favorably and rapidly, aided by oxygen to stimulate the lungs, milk for the kidneys, purgatives, and intestinal disinfectants. Chloroform may safely be given at the end of the period of dilatation and during expulsion, which must be artificial in order to hasten delivery.

Detachment of the Membranes in Premature Artificial Delivery.

Kufferath, of Brussels, at the Congrès de Gynécologie, d'Obstétrique, et de Pédiatrie, Bordeaux (*Universal Medical Journal*, October, 1895), describes a simplified method of detaching the membranes in induced labor. It consists in irrigation of the inferior segment with sterilized water or boric acid solution, using an Esmarch glass irrigator joined by a rubber tube to a glass **S**-shaped canula half a centimetre in diameter. Moderate pressure is employed in the irrigation, the vulva and vagina having been previously rendered aseptic. The danger of introducing air into the uterine cavity is avoided by using a pressure of fifty centimetres and letting the liquid flow as the sound is being introduced. One or two litres of fluid are usually sufficient, and, if pains occur, the irrigation is discontinued for a time. Labor usually sets in in from five to six hours. Kufferath has used the method in fifteen cases without an accident.

Symphyseotomy at the Baudeloque Clinic during 1894.

Pinard (*Annales de Gynécologie et d'Obstétrique*, January, 1895) reported twenty-two cases in which symphyseotomy was performed for contracted pelvis at the Baudeloque Clinic during the year ending December 7, 1894, in accordance with the following principles:

(1) Abandonment of induced labor.

(2) No application of forceps where bony obstruction exists (either in the superior strait, the cavity, or the inferior strait).

(3) Never perform embryotomy on a living child.

(4) Temporary enlargement of the pelvis (by symphyseotomy, pubiotomy, ischio-pubiotomy, coccygotomy), in all cases where bony obstruction is not overcome by the contractions, and in which the head is well placed, and calculations show that the pelvic section will permit it to pass.

(5) Cesarean section with utero-ovarian amputation in cases of absolute narrowness.

Of these twenty-two cases, nineteen mothers and twenty infants were saved. Of the three mothers who were lost, one died from intestinal obstruction, and two from septicemia contracted before entering the clinic. The two children that died were killed, one by fracture of the skull produced by the forceps of a physician who attended the mother before she was admitted to the clinic; the other by asphyxia due to compression of the cord. In this case the mother said nothing of the occurrence of her pains, the dilatation being discovered by accident to be complete, and the child died before symphyseotomy could be performed.

Of the nineteen mothers who recovered, there was no accident or complication attending the operation, and no serious hemorrhage. At the time of writing all had returned to their former avocations in as good condition as before symphyseotomy, as regards both standing and walking. In none was the solidity of the pelvis injured, although three have since become pregnant. In one case this operation was performed upon a woman for the second time, but with the same favorable results. It was practised but once each for brow and face presentations, twice for breech, and once for a shoulder presentation which could not be changed into one of the vertex during pregnancy.

Pinard makes the following query: Should one divide the pelvis when, the child still living, the woman is already infected, or should one rather in this case perform Cesarean section followed by amputation of the uterus and ovaries?

GYNECOLOGY.

UNDER THE CHARGE OF

CHARLES BINGHAM PENROSE, M.D.,

ASSISTED BY

H. D. BEYEA, M.D.

The Destruction of the Endometrium after Curettement.

Veit (*Centralblatt für Gynäkologie*, No. 36, 1895) writes a paper recording a case and his observations regarding this rare result of curettement. That the uterine cavity can be obliterated through curettement has been shown beyond doubt, first, by the case reported by Fritsch, and later by Küstner. The writer's patient was a married woman who had for a long time been sterile, and becoming pregnant, aborted. The physician who attended the abortion had believed that all of the placental tissue had come away. The patient, however, began to have severe pain and profuse hemorrhage, and a colleague was called in three days afterwards and the uterine cavity was thoroughly curetted. Since then the woman had not menstruated, and it was for some time believed that she was again pregnant. A vaginal examination was finally made showing that the uterus was not enlarged. The uterine body was somewhat lengthened but not increased in its antero-posterior diameter. A sound could be introduced into the cervix to the internal os, where it met an insurmountable obstruction. It was concluded, therefore, that the obstruction was the result of destruction of the endometrium by means of the curette and partial or complete obliteration resulted. The destruction of the endometrium from any cause in the non-puerperal uterus the observer believes is excessively rare. The first case which he saw was in Schröder's clinic. The woman had been sterile because of corporeal endometritis and had been treated by introducing the porcelain burner of a galvano-cautery into the uterine cavity. In this case the uterine cavity was completely obliterated. He has also seen obliteration occur in cases of corporeal endometritis with hemorrhage and profuse, purulent discharge (those cases where the ordinary forms of treatment have failed and hysterectomy is indicated) as the result of making applications of the chloride of zinc to the uterine cavity. The object of the applications of chloride of zinc was to destroy the endometrium and then obliterate the cavity. Obliteration does not, however, occur in every instance, and he now has two cases under observation where the uterine sound can be introduced without difficulty, but the symptoms have disappeared and a scanty menstruation continues. He believes that the endometrium can be destroyed by the use of the curette. The muscle tissue into which the fundi of the glands extend prevents their complete removal, and it is from these gland fundi that the new endometrium grows. In the puerperal uterus the endometrium is in an atonic condition, and it becomes possible that over greater or less areas the entire endometrium and the muscle tissue containing the gland fundi can be removed by the curette. If these areas are opposite each other, they coalesce, and thus partially or completely obliterate the cavity. In the case reported by Fritsch the glandular tissue must have been completely destroyed, while in Küstner's case only over a circumscribed area. He says it is strange that in those cases where only part of the uterine cavity is obliterated the menstrual flow is absent and hematometra does not occur. He is of the same opinion as Küstner that when the uterine cavity is completely obliterated it is useless to reopen it. In his case the obliteration was only

partial, and after six weeks' daily progressive dilatation he was able to introduce a sound to the fundus uteri. The menstrual flow then returned and has appeared regularly ever since. Conception has not as yet occurred. He believes that the endometrium of the fundus which was not destroyed extended over the injured surfaces of the cavity. As a result of these observations he concludes that the endometrium of the non-puerperal uterus is only destroyed with the severest possible treatment, as by using the galvano-cautery or chloride of zinc. In the puerperal uterus the danger is, however, very great, and the curette should, therefore, be employed very cautiously. Since Fritsch has pointed out that in puerperal infection curettement is not of necessity indicated, and the writer advises that when it is employed the greatest care should be taken. The changes which take place in the endometrium of a puerperal uterus are best treated by the involution process, and curettement should not be applied soon or severely after abortion or birth.

Stricture of the Female Urethra.

Fischler (*Centralblatt für Gynäkologie*, No. 39, 1895) reviews the literature regarding stricture of the female urethra, and reports four cases. He states that text-books on genito-urinary diseases rarely refer to this condition, and very little information can be gained from the literature. First, Herman, in 1887, collected and reported twenty-nine cases. Then, in 1894, Klëinwachter reported three cases. Van der Walker states that stricture of the urethra occurs quite as frequently in the female as the male. The writer's cases were found among 4000 dispensary patients. All four appeared complaining of the symptoms of vesical catarrh. Case I.—The patient was 56 years of age, married, sterile, always healthy since typhoid fever, in 1891. She complained of painful and frequent micturition, associated with tenesmus. The urine contained considerable sediment, triple-phosphates, and amorphus urates. On examination the urethral mucous membrane was red, swollen, and slightly prolapsed. The urethra admitted a Hagar No. 2 sound. The constriction began one-fourth of an inch beyond the external meatus. The endoscopic examination showed a vertical stricture three-eighths of an inch from the external meatus, to the left and above which there was considerable erosion. The patient was treated by slow dilatation, and after three months was relieved of all symptoms. Six months later the stricture had not returned. Case II, 66 years of age, married, sterile. Since nineteen years had had pelvic inflammatory disease and for four years vesical catarrh. Examination showed senile atrophy of the genital organs. On the left and inferior surface of the external urinary meatus there was a cicatrix which produced a very marked stricture. A Hagar No. 3 sound could be introduced. The endoscope showed a cicatrix extending into the ureter for three-eighths of an inch. The patient is still under treatment. Case III, 44 years of age, married, IV-para, two miscarriages, always healthy. Since six years she had complained of frequent and painful micturition. On vaginal examination the left appendage was prolapsed and very tender. A No. 2 sound was introduced into the urethra, giving patient pain and causing a slight hemorrhage. The stricture began a half inch from the external meatus. The endoscopic examination showed a vertical stricture. To the right side of the endoscopic field there was cicatricial tissue and to the left injured mucous membrane, the result of the dilatation. The fourth case was one of stricture of the external meatus, which was thought to be due to syphilis. She appeared at the clinic but once. Fischler believes that stricture of the urethra in women usually results from injury during labor or an external traumatism. It has been observed that it may

result from tumors of the urethra as polypi, vascular and fibroid tumors, phlebectasis, carcinoma, and lupus. It is also possible that gonorrhea may be a cause, as reported by Herman, nine cases. The writer agrees with Klëinwachter that since gonorrhea of the urethra is so very frequently seen in every dispensary practice and stricture so very rarely it is scarcely to be included as a cause. Herman describes eight and Klëinwachter one case as senile stricture, the patients being between 53 and 70 years of age. Herman thought that in these cases it was the result of a general fibroid thickening or induration of the urethra. The first two cases reported by the writer were elderly women, but there was no general fibroid thickening of the mucous membrane. He is unable to give a sufficient cause for the stricture in three of the cases.

Women and the Bicycle.

Hogg (*Province Méd.*, No. 38, 1894) gives the opinions of a number of French, English, Belgian, Spanish, Holland, and Switzerland gynecologists as to whether bicycling is beneficial or not to the health of women. The greater number agree, as Auvard, Chaput, Doléris, Treub, and Vulliet, that, as a rule, where it is not carried to excess in women with healthy genitalia, it is a profitable exercise; while a few others, among them Tait, condemn bicycling for women. The harmful influences which this exercise has is dependent upon its being overdone, the general health suffering, or upon faulty position and imperfect construction of the saddle, local diseases being produced. Women who have chronic inflammatory disease of the genital organs should not be allowed to ride a bicycle, since it causes hyperemia of these parts and thus accelerates the disease. A large number of French and other gynecologists believe that bicycling is a healing factor in disturbances of nutrition, as neurasthenia, hysteria, chlorosis, dyspepsia, etc.; also in chronic constipation, anemic amenorrhea, and nervous dysmenorrhea.

PATHOLOGY.

UNDER THE CHARGE OF

JOHN GUITÉRAS, M.D.,

ASSISTED BY

JOSEPH McFARLAND, M.D.

Dermoid of the Testis.

Jackson Clarke, at a meeting of the Pathological Society of London, held November 19, 1895, exhibited a dermoid of the testis. The tumor was situated in the testicle, surrounded everywhere by the tunica albuginia testis, and was as large as a hen's egg. In the interior there was a large intracystic projection, and an accumulation of sebaceous matter and hairs. The central part of the intracystic projection contained bone and cartilage. The microscope shows the cyst to be lined with skin provided with pilo-sebaceous follicles and sweat-glands. No trace of the tubular structure of the testis could be detected.

Tuberculosis of the Tonsil.

J. Purves Stewart (*British Medical Journal*, May 4, 1895, p. 970) reports a case in which an excised tonsil with the ordinary appearances of hypertrophy upon microscopic examination showed distributed throughout its substance a number of giant-cell systems characteristic of tuberculosis. No tubercle bacilli were demonstrated by Ziehl-Nielsen's stain, but the case seemed to be one of undoubted tuberculosis.

The Acute Degeneration of the Liver, produced by Streptococcus Infection.

V. Babes (*Virchow's Archives*, Band cxxxvi, S. 1) describes four cases of a peculiar hemorrhagic form of acute streptococcus septicemia. The first three cases were foudroyant, and exhibited necrosis of the entire liver, the capillaries of which were filled with a short streptococcus. The streptococcus was found to be distinctly pathogenic for animals. The micro-organisms were also secured from the lung, spleen, kidney, and tonsils in almost pure culture. The fourth case showed an almost perfect clinical picture of *acute yellow atrophy of the liver*. In the tissues, besides the streptococcus, the staphylococcus aureus, a lancet-shaped organism in the lungs, and an immense number of short streptococci were distributed throughout the organism. The streptococcus could not be cultivated from the degenerated liver, but was abundant in the *vena cava*.

The explanation of their absence in the liver seems to be that they first exert their activities upon this organ, and die and disappear from it as the parenchyma degenerates. The disappearance from the liver is concomitant with their growth in more resistant organs and tissues. Experimental evidence seems to establish the correctness of this view, for Babes found that when rabbits died more than eight days after inoculation, no streptococci could be found in their degenerated internal organs.

The invasion of this sudden and rapidly fatal disease seems to take place through open ulcers. In three cases a gangrenous or putrid tonsillitis seems to have been the channel. In one case where no ulceration was apparent the presence of the cocci in great numbers in the portal vein suggested infection through the intestinal mucous membrane. In a man, aged 25 years, an old dysenteric ulcer was demonstrated.

The Etiology of the Non-Traumatic Forms of Tetanus.

Kamen (*Centralblatt für Bakteriologie und Parasitenkunde*, November 9, 1895, Vol. xvii, Nos. 17 and 18) reports a case of tetanus in a man (soldier) of 41 years. There was no history of any traumatism. He had felt unwell for about six days, but during the first three was still able to perform his military exercises. The condition became rapidly worse after over-heating, and was accompanied by stiffness in the neck and jaw. In two days it was necessary for him to enter the hospital, where he remained only thirty-six hours before death from tetanus. In addition to his statement that he had not had any wound, the most careful examination at the necropsy failed to reveal any.

In the intestine fecal impaction was discovered, and as the tissues in the neighborhood seemed abnormal in appearance, cover-glasses were spread with the intestinal contents, stained, and examined. In addition to numerous other bacteria of small importance, a large number of drum-stick bacilli with large round spores, exactly corresponding to the tetanus bacillus, were found.

Attempts were made to produce tetanus in inoculated guinea-pigs by heating the contents of the intestine mixed up in distilled water and heated for half an hour to 80° C., but without result.

Kamen calls attention to the fact that often in cultures the heating seems to destroy the virulence of the bacillus, and does not regard the failure of the experiments as conclusive. Kamen is not of the opinion that the case was caused by the absorption of a tetanus toxine from the intestine where it was produced, and quotes Sormani, Tolledo, and Veillon, whose experiments show that the tetanus toxine is destroyed by the digestive juices. He thinks it more probable that through microscopic lesions of the gut the bacilli which it contains find a way into the system.

In this manner the cases of so-called reflex tetanus can be explained.

Parasitic Cellular Inclosures and their Cultivation.

Busse (*Centralblatt für Bakteriologie und Parasitenkunde*, Band xvi, Nos. 4 and 5) studied a tumor,—subperiosteal sarcoma of the tibia,—removed in the surgical clinic at Greifswald. Upon superficial microscopic examination it was seen to be a giant-cell sarcoma. In the giant cells numerous highly-refracting, circular, and oval granules were found by careful study. These had a peculiar double contour, and suggested a parasitic nature which a thorough microscopic study of the tissue fragments in connection with animal and cultivation experiments seemed to prove. Busse was able not only to grow the organisms in pure culture upon artificial media, but also to successfully inoculate them into animals.

The Demonstration of Bacteria of the Typhoid Group in Water.

Wasburzki *Centralblatt für Bakteriologie und Parasitenkunde*, November 9, 1895, Band xviii, Nos. 16 and 17, p. 526) uses three small sterile Erlenmeyer flasks, in each of which 45 cubic centimetres of the water to be examined and 5 cubic centimetres of a 10-per-cent. peptone-salt-glucose solution are mixed. The first flask receives no addition, the second receives 0.5 cubic centimetre, and the third 1.0 cubic centimetre, of a mixture of phenol 5.0, hydrochloric acid 4.0, and distilled water 100.

As soon as the growth of the contained bacteria causes the liquid in each to cloud a little gelatin plates are made from each. As soon as the colonies are large enough, those corresponding most nearly to typhoid are transferred to glucose, agar-agar, and to bouillon. The cultures are kept at the temperature of the body. The formation of gas in the sugar agar-agar excludes the typhoid bacillus.

DERMATOLOGY.

UNDER THE CHARGE OF

LOUIS A. DUHRING, M.D.,

ASSISTED BY

M. B. HARTZELL, M.D.

The Visceral Complications of Erythema Exudativum Multiforme.

Osler (*American Journal of the Medical Sciences*, December, 1895) reports eleven cases of multiform erythema in which visceral complication of various kinds occurred. Of these gastro-intestinal crises were by far the most common, being present, to a greater or less degree, in all. Nephritis was present in five cases; hemorrhage from various mucous membranes in five cases; recurrent attacks of bronchitis in one case; arthritis in five.

Two Unusual Cases of Verruca Necrogenica.

Harrison (*British Journal of Dermatology*, October, 1895), in a paper read before the British Medical Association, reported two cases of this disease which were peculiar in that neither of the subjects had been exposed, so far as could be learned, to the ordinary sources of infection. The first case occurred in the person of a commercial traveller, who had always been in good health, as a small papule at the end of the right thumb, close by the nail. This papule slowly increased in size, spreading down the ulnar side of the thumb, and when seen by the author was a papillomatous-looking mass with a reddened border. The growth was occasionally painful and attended by the discharge of a muco-purulent fluid. Ordinary methods of treatment having failed to cure the disease it was excised, cauterized with acid nitrate of mercury, and dressed with a 5-per-cent. ointment of pyrogallol. This treatment was altogether successful.

The second case occurred in a man 52 years of age, a packer in a warehouse, where he was employed in handling sugar-casks, rum, wine, and cotton goods. There was a papillomatous growth extending from the metacarpo-phalangeal joint of the right thumb upward towards the metacarpal bone of the index-finger. The disease was similar in appearance to the first case. Two years previously the patient had injured the ball of the thumb by pricking it with a rusty nail in a sugar-cask, the wound healing very slowly, and leaving a roughness which gradually extended towards the thumb-joint and spread to the parts occupied by the disease. Excision was followed by cure.

Herpes Tonsurans in the New-Born.

Toch (*Archiv für Dermatologie und Syphilis*, Band xxxii, Heft 3) reports a case of ringworm of the scalp and of the face in an infant 14 days old. The eruption began in the middle of the naso-labial furrow, and rapidly spread to other parts of the face and scalp, there being a number of ring-shaped, coin-sized patches. The presence of the trichophyton was demonstrated by the microscope, and the inoculation of pure cultures of the fungus into the skin of a 6-days-old infant was followed by a characteristic eruption.

Ulcerating Hypertrophic Lichen Planus.

Pringle (*British Journal of Dermatology*, November, 1895), at a meeting of the London Dermatological Society, held October 12, 1895, presented two cases of lichen planus in which ulceration had occurred. The first patient was a man, 44 years of age, in whom the disease was confined to the lower three-fourths of the outer surface of the leg. In the centre of the largest patch was a circular ulcer, the size of a sixpence. The reporter regarded this ulcer as the result of scratching, this view being supported by the fact that the ulcer healed up rapidly under an ointment of ammoniated mercury and a protective dressing. In the second case the eruption was also upon the legs. In the centre of the infiltrated areas were several ulcers with healthy-looking bases. These ulcers were regarded as independent of traumatism, and probably dependent upon the varicose veins present in the legs.

Thiol.

Heller (*Dermatologische Zeitschrift*, Band ii, Heft 5) reports his experience with thiol in the treatment of various diseases of the skin. Employed in seventy cases of eczema of various forms and degrees of severity, good results were, in

general, obtained. The best results were noticed in those cases in which other treatment had already been used. In seborrheic eczema a 10-per-cent. ointment proved serviceable. The drug was employed only in the liquid form, either in watery solution, one to three or five of water; or, where fats seemed to be indicated, in a 5- to 20-per-cent. ointment. In a case of herpes zoster in a boy applications of thiol gave great relief to the pain but employed in a second case it was without result. In burns it proved to be in no respect superior to the usual remedies. In two cases of acne necrotica its use was followed by satisfactory results. The keratoplastic properties of thiol make it a useful remedy in the treatment of chronic ulcers of the leg, and in two cases in which it was used it seemed to be better borne than any other remedy. As a remedy against itching it proved to be of great service, being especially useful in pruritus ani and in pruritus vulvæ. In parasitic diseases it was also effective. In the author's opinion there are many other remedies which, in most cases, are quite as effective as thiol, but in a few cases this remedy will be found to succeed where others fail.

Change of Color of the Hair after Exposure to Cold.

Griffiths (*Journal of Cutaneous and Genito-Urinary Diseases*, September, 1895) reports the case of a man, 65 years of age, an engineer in a city fire department, in whom, after prolonged exposure to cold and consequent great exhaustion, the hair turned from white to black within a few hours. The change in color was not due to any foreign matter, such as smoke or soot, since repeated washings have been without effect.

The Nature of the Cell-Changes in Molluscum Contagiosum.

Kuznitzky (*Archiv für Dermatologie und Syphilis*, Bd. xxxii, Hefte 1 and 2, 1895), as the result of his study, expresses the opinion that the so-called molluscum cells are not coccidia, but are derived from the cells of the rete. He does not believe with Neisser, that alcohol-fixed tissues are unsuitable for the investigation of cell change, but that the appearances found in such tissues accurately represent true structure.

Bullous Lichen Planus.

Leredde (*Annales de Dermatologie et de Syphiligraphie*, No. 7, 1895), in a communication made to the Société Française de Dermatologie, reports a case of lichen planus attended by the formation of bullæ. The patient was a woman, 48 years of age, anemic and hysterical. At the age of 28 years menstruation ceased and remained absent. The eruption began upon the left leg and was from the first accompanied by bullæ. The lesions were few in number, and appeared spontaneously, without scratching, at points protected by dressings; they remained serous for some days, but later became purulent. Study of the blood revealed a certain degree of eosinophilia.

BOOK NOTICES.

MEDICAL DIAGNOSIS WITH SPECIAL REFERENCE TO PRACTICAL MEDICINE: A Guide to the Knowledge and Discrimination of Diseases. By J. M. DA COSTA, M.D., LL.D., Emeritus Professor of Practice of Medicine and of Clinical Medicine at the Jefferson Medical College, Philadelphia, etc. Illustrated with engravings on wood. Eighth edition, revised, pp. 1104. Philadelphia: J. B. Lippincott Co., 1895.

At its first appearance, in 1864, Da Costa's Diagnosis took rank as the best book on the subject in the English language. In the thirty years which have elapsed since then it has passed through eight editions and still remains among the best treatises on diagnosis in any language. The author's power to call up a vivid picture of a disease by a few short, clear sentences remains unrivalled. Under the circumstances a review of the book seems unnecessary. It has been carefully revised. New matter has been added, especially in the departments of nervous diseases, of the blood, and of the urine, and diseases of the urinary organs. We regret not to see a good description of the method of examining for loose kidneys by palpation. The author has very wisely added matter on bacteriological diagnosis wherever its value seemed to him to be established.

The author describes at length the effect of full inspiration and expiration upon the percussion resonance of the lung. He finds that in the normal chest anteriorly a full-held inspiration increases the resonance, makes the sound fuller, and raises the pitch; but, making allowance for the cardiac region, the resonance below the apices is relatively less increased on the left than on the right side. Conversely, the effect of a held and complete expiration is to lessen resonance and to lower the pitch on percussion. These results are noteworthy from the well-known fact that we generally find increased volume of sound associated with lower pitch, and conversely.

Since the last edition was published a further Italian translation of the work has appeared. American medical men should feel a greater pride in this than the modesty of the author would permit him to express.

THE SCIENCE AND ART OF OBSTETRICS. By THEOPHILUS PARVIN, A.M., M.D., LL.D., Professor of Obstetrics and Diseases of Women and Children, Jefferson Medical College, etc. Third edition, carefully revised. Philadelphia: Lea Brothers & Co., 1895.

The large experience of Professor Parvin in obstetrics and his ability as a practitioner and teacher have justly won for him an

enviable position in the profession. The popularity of his work on obstetrics is amply shown in the early demand for this, the third edition.

Recognizing the important advances that have been made in the science of obstetrics, Dr. Parvin has thoroughly revised his manuscript, and, in fact, practically rewritten at least a third of the book, so that in almost every respect the book conforms to the accepted teachings of the day. As a necessary consequence of this new departure additional illustrations have been inserted, and the newer methods, operative and therapeutic, given full recognition. The well-known conservatism of the author is, we think, in several instances carried to an undue extreme, but we are heartily in accord with him in his discreet silence upon the merits of symphysiotomy (symphys*e*otomy in the book). The furor that has attended the revival of this operation must consume itself in time, and then in the clear light of facts and indisputable statistics the right of the procedure to permanent position as an operative measure in obstetrics will be demonstrated, or the method relegated to its former oblivion. Puerperal sepsis, as set forth by Professor Parvin, is in an unsatisfactory, chaotic condition; puerperal neuralgia and puerperal tetanus, although now recognized as of septic origin, not even finding a place in the section on puerperal fever. Extra-uterine gestation is, however, rescued from a similar incoherent condition, and with the aid of numerous and valuable illustrations, is presented in a most acceptable manner. It would be possible to further enlarge upon the merits of the book. They are many, and the present revision has very materially added to the value and usefulness of Professor Parvin's *chef-d'œuvre*.

An Introduction to Pathology and Morbid Anatomy. By T. Henry Green, M.D., F.R.C.P., Physician and Special Lecturer on Clinical Medicine at Charing-Cross Hospital, etc. Seventh American from the Eighth English Edition, revised and enlarged by H. Montague Murray, M.D., F.R.C.P., Lecturer on Pathology and Morbid Anatomy at Charing-Cross Hospital. Illustrated by 224 engravings. 8vo, pp. 598. Philadelphia: Lea Brothers & Co., 1895.

Green's Pathology has been for many years a very familiar book to American students. The arrangement of the subject-matter, the clear type, the beautiful illustrations, and the concise but clear style have all served to make it the most attractive introduction to pathology that we have. Since the appearance of the fifth American edition the book has been enlarged by over one hundred pages and seventy-five illustrations. while many of the old ones have been replaced by better ones. Sixty new illustrations and one colored plate have been added since the last edition. The colored plate exhibits the characteristic growths of the staphylococcus pyogenes aureus, of the bacilli of anthrax, malignant edema, diphtheria and tuberculosis, and of the spirillum of cholera. As increase of pathological knowl-

edge has necessitated new editions, it is inevitable that very little of the original text of Green is left. But the author is to be congratulated upon having as colleagues Mr. Stanley Boyd and Dr. Montague Murray, who, while conversant with recent pathological literature, have been able to preserve the great charm of the original book, its compact, lucid style, and clear, instructive illustrations.

As Green's Pathology has never posed as anything but an introduction to pathology, it would be unfair to compare it unfavorably with recent comprehensive treatises on the subject. If anything, it is rather more than it professes to be. It is a safe guide for the student during his college days, and one from which it is easy to pass to more extensive works on pathology; we can, therefore, cordially recommend it.

Skiascopy and its Practical Application to the Study of Refraction. By Edward Jackson, A.M., M.D., Professor of Diseases of the Eye in the Philadelphia Polyclinic and College for Graduates in Medicine, etc. With twenty-six illustrations, 112 pages. Philadelphia: The Edwards & Docker Co., 1895.

This volume is a welcome contribution to ophthalmic literature by one who is a master of the method, and who has done more than any other man to place it before the profession as a workable and reliable procedure.

The name skiascopy, suggested by Eggers, is used in preference to any of the many proposed. The author gives a brief history of the method, and one is struck by the long period that elapsed from the time when the principle of the procedure was recognized to the time when its utility as a reliable and speedy method was appreciated. It is not saying too much to recall that no one has so successfully or persistently urged for it the place it merits as has Dr. Jackson.

This monograph is a concise statement of all that is required in learning the use of this helpful method of estimating refractive errors. The author's suggestion that the beginner take a case with known refractive error and study the manifestation of the fundus reflex is a good one. Throughout the directions are clear and concise, and the work is made attractive by the statement of cause and effect. Skiascopy has its most favorable field for usefulness in the hospital where there is a dark-room, and the imperfect means of excluding all but one source of light from the office of the practitioner and the entailed difficulties in using the method may in some measure explain the tardiness with which it has been adopted. In reference to the method, it may be said that it is accurate and speedy, and one having learned to use it will not abandon it or become indifferent to it. This latest work of Dr. Jackson is so complete and comprehensive that we feel sure it will lead many to a familiarity with a method which has been previously neglected.

Dose-Book and Manual of Prescription-Writing. By E. Q. Thornton, M.D., Ph.G. Philadelphia: W. B. Saunders, 1895.

This manual will be fully appreciated by undergraduates in medicine, and by those who have just entered upon their professional labors. In the 330 pages comprising the book the author has included everything which directly or indirectly bears upon the subject. Part I treats of Weights and Measures; Part II of Prescription-Writing; Part III of Official Preparations and Methods of Prescribing; and Part IV of Dosage. We are much pleased to see the metric system recommended by the author, but we do not agree with him in the statement that to use it in prescribing it is obligatory for the physician to be able to translate it into apothecaries' weights and measures. An independent study of the metric system is absolutely essential to its successful adoption in practice. The chapters dealing with the grammatical constructions of prescription have been clearly and accurately written, and should claim the careful attention of every student whose early education has been neglected. We are hopeful that in the near future the student of medicine will not be obliged to acquire his knowledge of Latin from manuals of prescription-writing. However, the author has adapted his book to meet existing conditions, and in so doing he has placed at the disposal of the student a work far superior to any of its class.

The Medical News Visiting List. Philadelphia: Lea Brothers & Co, 1896.

This favorite list is now published in four styles: weekly, dated, for thirty patients; monthly, undated, for 120 patients per month; perpetual, undated, for thirty patients per week per year; and perpetual, undated, for sixty patients per week per year (without text). The present edition has been carefully revised and brought up to date in every respect. The text portion contains useful data for the physician and surgeon, including an Alphabetical Table of Diseases, with the most approved Remedies, and a Table of Doses in both decimal and old systems. It also contains section on Examination of Urine, Artificial Respiration, Incompatibles, Poisons and Antidotes, Diagnostic Table of Eruptive Fevers, and the Ligation of Arteries. When desired, a thumb-letter index is furnished. In its several styles the *Medical News Visiting List* adapts itself to any system of keeping professional accounts.

Physicians' Visiting List for 1896. (Lindsay & Blakiston.) Philadelphia: P. Blakiston, Son & Co.

This well-known visiting list presents several improvements in the new edition for 1896.

More space has been allowed for writing the names and for "Memoranda;" a column has been added for the "Amount" of the weekly visits, and a column for the "Ledger Page."

This has been done without increasing the bulk by rearranging and simplifying the reading matter and memoranda pages.

The many desirable features have been retained. It continues to be issued in several forms.

La Pratique Journalière de la Chirurgie dans les Hôpitaux de Paris. Par Paul Lefert. Paris: J. B. Bailliére et Fils, 1894.

This little book contains notes on the practice of more than sixty of the hospital surgeons of Paris. Among the authors quoted are: Berger, Lucas Championnière, Guyon, Richelot, Duplay, Kirmisson, Lannelongue, Le Dentu, Péan, Reclus, and many others well known by their important contributions to medical literature. The book will be interesting to those who have spent some time in the hospitals of Paris, as it will recall the work that they saw there, as well as the surgeons prominent in hospital practice.

Transactions of the Antiseptic Club. Reported by Albert Abrams. New York: E. B. Treat, 1895.

This volume is intended to furnish the physician with "sterilized wit and humor," and illustrates in a ludicrous manner some of the fads and foibles of modern Æsculapians. The organization of the "Antiseptic Club," the reading and discussion of papers, the "cases" described, and the dental clinic are some of the topics that have been detailed in a humorous and sarcastic manner. The book doubtless will be enjoyed by many who will pick it up at odd moments, and who will find relaxation in its pages between the more serious matters incident to professional life.

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FEBRUARY, 1896.

A CASE OF EXCISION OF BOTH UPPER JAWS, WITH SOME REMARKS ON THE TUMORS AFFECTING THESE BONES AND THEIR OPERATIVE TREATMENT.

By J. William White, M.D.,

Professor of Clinical Surgery in the University of Pennsylvania; Surgeon to the University, Philadelphia, and German Hospitals.

and

Alfred C. Wood, M.D.,

Instructor in Clinical Surgery in the University of Pennsylvania; Assistant Surgeon to the University Hospital; Surgeon to the Philadelphia Hospital.

Lizars appears to have first recommended the removal of the upper jaw for tumor of the antrum in 1826, and the operation was carried out by Gensoul,[1] of Lyons, in 1829. Since this time it has been performed by surgeons in all parts of the world, and the published cases now number more than 300.

In 1824, Rogers, of New York, succeeded in removing the greater portion of both maxillæ. Regnoli removed the alveolar border of both sides by means of a chisel in 1825. In 1836 Liston resected the left upper jaw and a portion of the right. Partial resections were also performed by Dupuytren. The complete removal of both upper maxillæ was first accomplished by Hayfelder, of Erlangen, assisted by Reid, July 23, 1844. Braun tabulated eleven examples of the double operation in 1876. Seven of these recovered and four died. In five other cases, the two bones were removed at different times without a death. As late as 1894 Reim was able to collect but thirty-one cases

[1] Gross gives the credit of the first excision of the upper jaw to Jameson, of Baltimore, whose operation was performed in 1820. The report (American Medical Recorder, Vol. IV), however, says: "the body of the maxillary bone was found a good deal broken up, but not entirely removed. . . . . The incisions were not carried so high up as the bottom of the antrum."

of complete or nearly complete removal of both upper jaws on account of tumors involving these bones.

Complete Removal of both Upper Jaws.—The following case came under Dr. White's care at the University Hospital: A. B., aged 40 years, single, railroad employé, with no family tendency to tumors that could be elicited by inquiry, gave the following history: In 1869 he contracted syphilis. Treatment was begun promptly. The secondary manifestations were mild, and no further trouble was experienced from this source. During the same year he received a blow on the face, to the left of the nose, fracturing the nasal bone. A considerable deformity remained at the seat of injury, although the bones had been replaced.

In November, 1886, the right eye was observed to protrude more than formerly; six months later a swelling was noticed under the inner angle of the eye which gradually increased in size and spread outward. Later, the superior maxilla and the malar bone became prominent. Lancinating pains occasionally darted through the globe of the eye. In September, 1889, the sight of this eye became impaired. In January, 1890, a swelling on the left side of the nose, at the seat of the former injury, was observed. For two months prior to admission to the hospital hearing on the right side was defective, and more recently that on the left side became affected. Taste was impaired also, and the patient was unable to bite anything hard on the right side.

As the tumor, which now involved both upper jaw-bones, was constantly enlarging, and new and troublesome symptoms were appearing in consequence, it was decided to perform bilateral excision.

The operation was performed March 19, 1890, by Dr. White. Ether anesthesia was employed, and Ferguson's method was adopted, the incisions being made, of course, on both sides. The right maxilla being involved to the greater extent was removed first, when it was observed that the tumor invaded the antrum on the left side, so that the removal of this bone was imperative. On the right side, the entire upper jaw was removed together with the malar bone, on the left side the maxilla only. After arresting all hemorrhage, the cavity was packed with iodoform gauze, and the external wound brought together by sutures and hare-lip pins. The operation was completed in forty-five minutes, and was followed by but little shock. The line of incision healed by primary union. The after-treatment consisted in the frequent use of antiseptic mouth-washes and sprays.

Convalescence was rapid and without complications; the patient left the hospital at the end of eighteen days. The growth was found to be an osteoma, and the patient could, therefore, be reasonably

assured against a recurrence of the disease. The operation necessarily alters the facial expression, as it did in this case.

According to Hüter the jaws are more frequently the seat of tumor-formations than are any other bones of the skeleton. Almost every variety of tumor is found in connection with these bones. Although of such frequent occurrence, giving opportunity for extensive observation, less progress has been made in our knowledge of these new growths than in that of those affecting many other portions of the body. This is due largely to the inability to locate the origin of the growth in a number of instances, to the fact that many cases do not come under observation until late in their course, and to the additional fact that on account of the delay in seeking advice and the rapid extension of the disease no operation is justifiable. They take their origin frequently in parts more or less inaccessible to our present methods of examination, as the antrum of Highmore and the ethmoidal and the sphenoidal cells.

Reim[1] has recently made a very careful study of tumors of the upper jaws, from which we have taken a number of the statistics found in this paper. Although it is devoted especially to the cases in which both bones were involved, nevertheless the remarks apply with equal force to unilateral disease.

The malignant tumors of the upper jaws comprise about two-thirds of the total number affecting these bones. The relative frequency of sarcomata and carcinomata is not unanimously agreed upon, some statistics showing one to be of more frequent occurrence, while other studies indicate that the other is the more commonly met with.

Weber and König state that sarcomata exceed carcinomata in frequency. On the other hand, Gurlt's extensive tables show 125 carcinomas of the upper jaws to ninety-six sarcomas.

Bryant's tables of 254 cases of resection of the upper jaw include 34 carcinomas, 17 epitheliomas, and 6 malignant tumors in which the nature of the growth was not stated. If we include these all as carcinomas, it gives a total of 57, while sarcoma is noted in 79 instances.

Küster in a period of 17 years observed 38 tumors of the upper jaw, of which 20 were said to be carcinoma and 14 sarcoma. Reim's[2] table includes 128 cases of tumor, involving to a greater or less extent both superior maxilla; of these 36 are described as sarcoma (28 per cent.), and 38 as carcinoma (30 per cent.). On this subject Butlin[3] says, "Both sarcoma and carcinoma may affect the antrum [he uses

[1] Ueber doppelseitige ober Kiefertumoren und den Erfolg ihrer operativen Behandlung, Munchen, 1894.

[2] Loc. cit.

[3] The Operative Surgery of Malignant Disease, 1887, p. 124.

the words "antrum" and "upper jaw" synonymously], but the larger number of malignant tumors appear to be carcinomas."

The figures are so evenly balanced, however, that in the present state of our knowledge, carcinoma and sarcoma may be said to occur with about equal frequency. When the difficulty of separating these two forms of neoplasm in many cases is recalled, it will readily be acceded that the figures given are at best only relatively correct. Some cases of myeloid carcinoma closely simulate sarcoma, while certain forms of the latter resemble the former. It may be that more accurate methods of observation of the future will result in a revision of the present views. If we were to be guided by the generally accepted clinical observation that carcinomata involved the adjacent lymph-glands early in their course, the large majority of the malignant tumors of the upper jaws must necessarily be included under "sarcomata," inasmuch as in but few instances did the lymph-glands seem to have been affected. As both these forms of new growths are, in general, about equal in malignancy, their careful differentiation does not appear, at this time, of great practical value.

The following brief analysis of some points in connection with the different tumors affecting the upper jaw may be of interest.

Carcinoma.—Gurlt (quoted by Reim) has collected 272 cases of carcinoma of the jaw, of which 125 were in males, and 36 in females, and the sex was not recorded in 111. The upper jaw was affected 125 times. Of 41 instances in which the character of the growth was clearly described, 23 were epithelial carcinomas, 17 medullary carcinomas, and 1 fibro-sarcoma. Of 103 observations in which the age was stated,—

1	patient	was	13	years	of	age.
4	patients	were	21 to 30	years	of	age.
6	"	"	31 to 40	"	"	"
30	"	"	41 to 50	"	"	"
40	"	"	51 to 60	"	"	"
16	"	"	61 to 70	"	"	"
6	"	"	71 to 77	"	"	"

In the cases collected by Reim, the ages varied between 5 and 84 years, in detail they were—

1	patient	1 to 10	years.
2	patients	11 to 20	"
2	"	21 to 30	"
3	"	31 to 40	"
6	"	41 to 50	"
14	"	51 to 60	"
5	"	61 to 70	"
1	patient	71 to 80	"
1	"	81 to 85	"

As regards age, therefore, it will be seen that, while carcinoma is more frequently observed after the 40th year, it is by no means unknown much earlier than this—in one case in the 5th year.

The rarity of the disease in women, in Reim's collection of cases, is rather remarkable; but two instances being noted, as compared with 35 cases in men. The length of time that these tumors existed was from two months to twenty years.

Sarcoma.—All forms of sarcoma affect the upper jaw. The age at which these growths appeared in Reim's collection was as follows:

3	times	in first	decade.
4	"	" second	"
6	"	" third	"
3	"	" fourth	"
4	"	" fifth	"
6	"	" sixth	"
2	"	" seventh	"

The extremes were 6 and 67 years. It will be seen from this that more cases developed after the 40th year than before, so that the age is an uncertain factor in differentiating between carcinoma and sarcoma. The relative frequency in the two sexes is more nearly equal than in the case of carcinoma; of thirty cases in which the sex was noted nineteen were men and eleven in women. The duration of the tumors was from two and a half months to twenty-four years.

Abscess of the maxillary sinus frequently presents many of the characteristics of a new growth, malignant or otherwise. Gensoul, of Lyons, whom most writers credit with first performing excision of the upper jaw, is said to have cut down with the intention of removing this bone on account of a tumor, to find that the case was one of a purulent collection in the antrum. A similar experience is recorded by Mr. Smith. A middle-aged woman was admitted, under his care, at King's College Hospital, with a large swelling of the right cheek. After an examination by Sir W. Fergusson and Mr. Smith, the trouble was thought to be a malignant tumor of the antrum, and excision of the upper jaw was recommended. Before the operation was undertaken, however, the patient was attacked with erysipelas of the face, upon the subsidence of which an abscess burst beneath the under eyelid. This occurrence altered the view of the case, and led Mr. Smith to operate for abscess of the antrum by extracting the second molar tooth and enlarging the opening thus made. The trouble was found to have been caused by necrosis of a portion of the bony wall of the antrum.

Garretson relates the case of a man who, after five years of great mental and physical suffering, due to supposed malignant disease, was found to have nothing but a simple muco-puruloid engorgement depending upon a dead tooth.

In some of the cases of abscess operated upon by Dr. White, a diagnosis had previously been made of malignant tumor.

Abscess of the antrum occurs most commonly from diseased teeth. In many cases the roots of the upper teeth penetrate the floor of the cavity, and are covered only by antral mucous membrane, which becomes inflamed as a result of periodontitis. In these cases the first symptom is usually toothache, which may have a throbbing character. This is followed by a purulent discharge from the nostril, with a sense of fulness in the upper jaw of the affected side; or if the nasal opening of the antrum becomes occluded by the swelling of the mucous membrane, the pus is retained and the walls of the antrum begin to protrude. The floor of the cavity usually yields first to the pressure, in which case the hard palate is seen to bulge downward; less frequently it may be the anterior wall, producing a fulness of the cheek; or the orbital plate may yield with protrusion of the eye as a consequence. In other cases the inner wall gives way, and the corresponding nostril becomes occluded. If the case remains untreated, the distention takes place sooner or later in all these directions, the abscess finally evacuating itself into the mouth beneath the lower eyelid, through the canine fossa or elsewhere. In rare instances there is an accumulation of mucus in the antrum due to the excessive formation of the normal secretion; or the fluid may have a serous character.

Necrosis of the walls of the antrum is sometimes met with, the symptoms being those of abscess of this cavity.

In the differentiation between fluid in the antrum and a solid growth of the bone, a consideration of the previous history of the trouble and a careful examination of the present condition are usually necessary. In cases of moderate collection in the maxillary sinus, the patient will sometimes feel the motion of the fluid on changing the position of the head. If the nasal orifice is patulous, there will be a discharge from the nose, especially on lying on the sound side.

Toothache is an uncertain symptom; it is present in the beginning of many cases of abscess, and it is also the most prominent complaint in the early history of some examples of malignant neoplasm. Inflammation, which is usually accompanied or followed by the formation of pus, is absent in the case of tumors. The history of a diseased tooth, or evidence of its present existence, would be

suggestive of abscess. In the case of abscess, the swelling is almost invariably sharply limited to one side; if the roof of the mouth be examined, the unilateral nature of the trouble is often seen well pronounced. In the early stages, before any distention has taken place, the use of a small electric lamp placed in the patient's mouth may assist in the diagnosis. If the examination be conducted in a dark room, and the antrum is healthy, the diffused light of the lamp will be observed through either cheek; but if either cavity contains fluid or a tumor, the corresponding side of the face will not be illuminated. Finally, if any doubt remains, the antrum may be explored by removing a diseased tooth, if such exist, and completing the passage by means of a trocar or a probe; or, by perforating the anterior wall. If pus is found, free drainage and suitable antiseptic washes will bring about a cure.

Fibromas.—In Weber's collection of 307 tumors of the upper jaw fibroma and cavernous fibroma occurred seventeen times (5.5 per cent.). The proportion in Reim's table is somewhat greater, 11 in 127 cases (8 6 per cent.). Of ten of the latter cases in which the sex was mentioned, there were four men and six women. The youngest patient observed was 12 and the oldest 40 years. The duration of the tumors in the cases that were operated upon was from four months to eight years. These growths are of very hard consistence. In one case a recurrent tumor was removed six years after the first operation.

Enchondroma.—These tumors are less frequently met with than the former. In a collection of 190 enchondromata of bones by Weber, the superior maxilla was involved seven times (3.7 per cent.). Of the same author's 307 tumors of the upper jaw, enchondroma is noted eight times (2.6 per cent.). Gurlt's table of 16,637 tumors includes 136 enchondromata, of which seven involved the antrum (5 per cent. of the total number of enchondromata). Reim's collection included twelve enchondromata (9.5 per cent.). Seven cases are noted in men and three in women. The ages of the patients were from 16 to 56 years. These tumors are apt to be irregular and are very hard. They are prone to become partly bony.

Osteoma may occur as a circumscribed growth or as a general hypertrophy of the bone. Weber has collected 252 exostoses, of which twenty-five (10 per cent.) involved the upper jaw,—one side alone being affected in eighteen instances, and both bones seven times. Gurlt's tables include but twenty-three osteomas, and only four of these (17 per cent.) were found on the upper jaw. Weber records thirty-two bone tumors (10 per cent.) and Reim seventeen (13 per cent.). These growths belong essentially to early adult life. They develop, in general, in the second and fourth decennium.

Adenoma is extremely rare in this region. Reim found but one case recorded, affecting both bones. Weber does not mention adenoma in the 307 tumors of the upper jaw which he collected.

Cysts are more frequently met with. Of 1069 cysts collected by Gurlt, seventeen (1.6 per cent.) were on the upper jaw. Weber's table includes twenty cases (6.5 per cent.) of all tumors of the upper jaw. Reim collected but two instances (1.6 per cent. of all tumors) affecting both jaws.

Operative Treatment.—Nothing need be said here of those more or less circumscribed growths appearing on the upper jaw which, on account of their situation and character, may be excised with little or no sacrifice of the bone itself, or of those that involve the alveolus only, but certain points of interest in relation to those cases in which the degree of involvement necessitates the more or less complete removal of one or of both superior maxillæ will be briefly alluded to. The operative technique of excision of the upper jaw is described in every surgical text-book, and will therefore not be considered. The method adopted by most operators is that which is known as Ferguson's. A few operators still prefer to ligate one or both external carotid arteries before performing the excision, in order to guard against excessive hemorrhage. This measure has not been generally adopted, and it would seem to be unnecessary in most cases. Gross[1] states that he "had never found it necessary in any of his operations to secure the carotid artery as a means of preventing hemorrhage. Indeed, it is surprising that such a procedure should ever have been recommended, much less practised, by any one. . . . No skilful surgeon now even employs compression of the carotid artery in these operations." On the other hand, that alarming and even fatal hemorrhage sometimes occurs is shown by Bryant's table.[2] In 230 cases of removal of one superior maxilla, primary hemorrhage is said to have caused death in nine instances (about 4 per cent.); while in fifty-seven additional cases (about 25 per cent.) the hemorrhage is described as profuse, and is said to have come about equally from the facial incisions and the deeper parts of the wounds. In thirteen instances (about 5.5 per cent.) hemorrhage, either primary or secondary, was so free that the life of the patient was considered endangered. We believe, in spite of these figures, that, if the bleeding points in the soft parts are controlled by pressure-forceps or ligatures before proceeding to the removal of the bone, which should be executed as rapidly as is compatible with proper regard for the safety of the patient, but little, if any, difficulty will be encountered in arrest-

[1] System of Surgery, Vol. II, 1882, p. 398.
[2] Loc cit.

ing the hemorrhage. The after-treatment consists in maintaining the wound as nearly aseptic as possible, and in administering a sufficient amount of food.

In regard to the mortality of this operation, Butlin[1] found that of 108 patients operated upon, thirty-two had died from causes connected with the operation (a mortality of 30 per cent.). This apparently excessive mortality led us to examine the recently reported cases with reference to this point. The result of this study will be referred to later.

The causes of death in the thirty cases collected by Butlin were as follows:

Hemorrhage	1
Meningitis and abscess of brain	3
Gangrene of lung	2
Bronchitis and pneumonia	3
Collapse	1
Shock	2
Anemia and exhaustion	9
Typhus	1
Erysipelas	4
Pyemia and septicemia	4

The chief causes of death, therefore, were those which exist in common with all other severe operations,—*e.g.*, hemorrhage, shock, collapse, exhaustion, erysipelas, and general blood-poisoning (twenty-one cases). The factors in the fatal issue that are peculiar to the operation being meningitis, abscess of the brain, and pulmonary affections (eight cases). The death from typhus was, of course, purely incidental, and should not, we think, have been included. Inasmuch as many of these cases were reported before the general improvement in the statistics of operations began, as the result of the adoption of Listerian methods, Butlin examined the later with the earlier records, and found no appreciable difference. Notwithstanding this fact, by the proper application of antiseptic measures he is led to "hope and believe that another series of 100 cases would present a mortality of not more than eight or ten." On this point, Gross[2] states that he has performed the operations upward of twenty times without a single loss.

In Bryant's collection of 230 cases of removal of one upper maxilla, thirty-three, or about 14 per cent., are said to have died from the immediate results of the operation or from its complications and early sequels. It is remarkable that, of twenty-four more or less

[1] Loc cit.
[2] Op. cit., p. 401.

complete excisions of both superior maxillæ, included in Bryant's table, there was not a single death. A close examination of the nature of the disease calling for operation, and of the steps incident to it, did not disclose anything in explanation of this surprising result. Reim's collection of thirty-one operations for the removal of both upper maxillæ shows five deaths (16 per cent.).

As Mr. Butlin's work was published in 1887, in order to compare the results of the operation before and since this period, we have tabulated the accessible reports in current literature, beginning with and including 1887 up to the present time. Our table includes sixty-six more or less complete unilateral excisions and five bilateral,—seventy-one in all. Death appears to have been due to the operation in four instances, a mortality of a little less than 6 per cent. In one additional case the result is recorded as a death, although the report states that the fatal termination did not occur until two and a half months after the operation, and was due to the recurrence of the disease. Of the five cases of double resection all recovered. This corresponds with Bryant's observation, although the number is much smaller. Whether the mortality is influenced by the "complete" or "partial" removal of the bone is not definitely known. Bryant's statistics indicate that the mortality of complete excisions is five times as great as partial removals of the upper jaw. This discrepancy seems to be excessive, and may be due to the particular series of cases collected. This statement can scarcely be accepted as any more conclusive than the equally irrational conclusion that might be drawn from the same study, that it is safer to remove both upper jaw-bones than one. Butlin's statement concerning removal of the upper jaw with the exception of the orbital plate probably applies to the majority of "partial" excisions included in most tables. He says, "I do not think the actual danger to life from this operation is much, if at all, inferior to that due to the removal of the entire bone, for the smaller portion removed and the smaller incision through the soft parts are more than compensated by the greater difficulty in arresting the deep hemorrhage and the longer time which is often necessarily consumed." These operations are to be preferred, however, whenever proper, on account of the difference in the cosmetic result.

Perhaps the most striking observation of our study of this subject is the decreasing mortality attending the operation of removal of the upper jaw. In 1887 it was said to be 30 per cent. (Butlin); in 1890, 14 per cent. (Bryant); while the cases collected by us since 1887 show less than 6 per cent. of operative deaths. We believe these figures are to be explained largely by improvement in the technique, especially in the antiseptic treatment of the wound, but some allow-

ance must necessarily be made for error in interpreting the often vague reports, and also for the fact that different tables are apt to represent different classes of cases. We can scarcely believe that the very low mortality in the tables we have compiled is the result of suppressing the unfavorable cases to a greater extent than heretofore.

When we examine the remote results of operation for malignant disease of the upper jaws, we are met with discouraging figures, inasmuch as we find local recurrence of the disease in a large number of cases. In speaking of this subject, carcinoma and sarcoma may be considered together, as they are about equally prone to recur; carcinoma may be considered the more unfavorable, however, because of the tendency to cause metastasis to other parts.

So unfavorable, indeed, did Butlin find the results in his study of the subject that he was led to say, "Unless there is a reasonable hope that better results will be procured in future, the operation must be condemned." This statement is based upon the observation that of sixty-four cases that could be followed up after operation but four can be regarded (from the three years' limit) as successful, and in one of these the disease reappeared at the end of nine years. Estlander is more encouraging. From a study of sixteen total resections for sarcoma he says, "A patient with sarcoma of the upper jaw has, under ordinary conditions, the prospect of living a year from the time of the beginning of the disease. In the majority of cases, probably, the patient does not seek advice until in the second half of this period, and would have therefore six months or less to live without operation. If the resection is performed, the patient has exposed his life to a certain danger, which, as we have seen, is now less than 6 per cent., but he gains seventeen chances in 100 of being completely cured, and as great a prospect of prolonging his life a year, while there are sixty-six chances in 100 that nothing will be lost nor gained except some relief from pain for the balance of the person's life."

As a rule, excision of the upper jaw for fibromata, enchondromata, osteomata, and miscellaneous tumors is followed by a permanent cure. In exceptional cases a recurrence is noted, but it is questionable whether these tumors may not have had the stamp of malignancy already impressed upon them, as it is well known that these benign growths in this situation are apt to undergo malignant change. It is this fact that impresses us with the importance of early and thorough removal of even innocent tumors in this situation.

Cases of Removal of One Superior Maxilla.

No.	Reference.	Age.	Sex.	Kind of Tumor.	Part Removed.	Result.	Remarks.
1	Middlesex Hosp. Rep., 1885.	68	M.	Epithelioma.	Right superior maxilla and adjacent pts.	Recovered.	Recurrence in 10 mos.; death from asthenia.
2	Middlesex Hosp. Rep., 1885.	50	M.	. . . . .	Left complete.	Recovered; in hospital 55 days.	Tenth day hemorrhage stopped with stypt. collodion; left hospital with appearance of recurrence, 7 weeks.
3	Middlesex Hosp. Rep., 1885.	67	F.	Fibro-sarcoma.	Lower two-thirds.	Died of septicemia on 15th day.	Forty years, excised 10 and 6 years ago.
4	Middlesex Hosp. Rep., 1886.	62	M.	. . . . .	Left complete.	Recovered.	Left hospital 39th day; convalescent 1 year.
5	Middlesex Hosp. Rep., 1886.	35	F.	. . . . .	Right complete.	"	Ten months later recurrence; operation, second recurrence and death.
6	Middlesex Hosp. Rep., 1887.	71	F.	Sarcoma.	"	"	Over 2 years; operation for recurrence.
7	Middlesex Hosp. Rep., 1887.	49	F.	Myxo-fibro-sarcoma.	"	"	
8	Middlesex Hosp. Rep., 1888.	45	M.	Fibro-spindle and myeloid cells,	"	"	Six months later, recurrence excised; 1 year later another recurrence; removed with eye, etc.; 6 months.
9	Middlesex Hosp. Rep., 1888.	38	F.	Round-cell fibro-sarcoma.	Left complete.	"	Recurrence and operation after 35 days; 6 months.
10	Middlesex Hosp. Rep., 1889.	48	F.	Epithelial acinus glandular.	"	"	Eighteen months.
11	Middlesex Hosp. Rep., 1889.	22	F.	Small round-cell fibro-sarcoma.	Right complete.	"	Preliminary tracheotomy and plugging pharynx, 6 months.
12	Middlesex Hosp. Rep., 1889.	49	F.	. . . . .	Partial.	"	Return in 2 months; no operation; died.
13	Middlesex Hosp. Rep., 1889.	23	F.	Large spindle cells, some myeloid cells.	Right complete.	"	Eighteen months.
14	Middlesex Hosp. Rep., 1889.	55	F.	Mixed sarcoma.	Upper half, right.	"	Ten months.
15	Middlesex Hosp. Rep., 1890.	40–50	F.	. . . . .	. . . . .	"	
16	St Bartholomew's Hosp. Rep , 1889.	54	F.	Sarcoma.	. . . . .	"	Recurrence; operation; death from bronchitis and exhaustion, two months.
17	Van der Veer, Albany Med Annals, Vol. IX, No. 10, 1888, 265.	37	F.	Myeloid-sarcoma.	Total,	"	
18	Berger, Bull. et Mém. Soc. de Chir. de Par , 1890, N. S., XVI, 724.	. . . . .		Osteo-sarcoma.	"	"	
19	Gaston, Intern. Clinics, Phila., 1892, 2d S., III, 255.	. . . . .		Fibro-sarcoma.	"	"	
20	Ashhurst, UNIVER. MED. MAG., Phila., 1892-93, V, 859.	67	M.	Sarcoma.	"	"	Early recurrence.
21	Branham, Med. News, Phila., LXIV, 1894, 233	29	M.	"	"	"	
22	Branham, Med. News, Phila., 1894, LXIV, 233.	40	F.	Spindle-celled sarcoma.	"	"	Died in 2 months and 3 days from extension.
23	Scherck, N. Orl. Med. and Surg. Journ., 1889-90, N. S., XVII, 19.	50	F.	Osteo-sarcoma.	"	"	
24	Weeth, N. Y. Med. Journ., 1887, II, 556.	28	M.	Osteoma.	Almost total.	"	
25	Darby, Virgin. Med. Monthly, 1891-92, XVIII, 877.	Col. 23	F.	Osteo-sarcoma.	"	"	
26	Helmuth, Ann. Surg., St. Louis, 1887, VI, 471.	49	M.	Subperiosteal myeloid tumor.	"	"	

Cases of Removal of One Superior Maxilla.—(Continued.)

No.	Reference.	Age.	Sex.	Kind of Tumor.	Part Removed.	Result.	Remarks.
27	Helmuth, Ann Surg., St. Louis, 1887, VI, 476.	53	M.	Encephalois carcinoma.	Total.	Recovered.	
28	Helmuth, Ann. Surg., St. Louis, 1887, VI, 478.	52	M.				
29	Hartley, N. Y. Med. Journ., 1892, LVI, 303.	66	M.	Carcinoma.	Total.	"	
30	McBurney, N. Y. Med. Journ., 1892, LV, 580.	62	M.	Osteo-sarcoma.	Left, total.	"	
31	Lange, N. Y. Med. Journ., 1891, LIII, 162.	55-60	M.	. . . . .	Total.	"	
32	Lange, N. Y. Med. Journ., 1891, LIII, 162.	55-60	F.	. . . . .	"	"	
33	Beach, Boston Med. and Surg. Journ., 1890, CXXII, 473.	40	M.	. . . . .	Partial.	"	Probably enchondroma.
34	Jacobson. Dent. Cosmos, Phila., 1889, XXXI, 96.	Advanced	F.	Sarcoma.	Total.	"	Early recurrence.
35	Baker, Lond. Lancet, 1891, II, 1099.	36	M.	"	Partial.	"	No recurrence for 4 years.
36	Parkin, British Med. Journ., 1892, I, 1074.	3½	. .	Myeloid sarcoma.	Total.	"	Five days previous part of lower jaw removed.
37	Heath, British Med. Journ., 1887, I, 777.	36	F.	Ossific sarcoma.	"	"	University College Hospital.
38	Heath, British Med. Journ., 1887, I, 777.	'57	F.	Squamous epithelioma.	"	Death 2½ months.	Two and a half months recurrence; University College Hospital.
39	Heath, British Med. Journ., 1887, I, 777.	51	M.	Squamous epithelioma.	. . . . .	Died 7th day.	Lobular pneumonia; University College Hospital.
40	Heath, British Med. Journ., 1887, I, 777.	66	F.	Squamous epithelioma.	Partial.	Recovered.	Recurrence some weeks later; University College Hospital.
41	Heath, Lond. Lancet, 1888, II, 865.	53	M.	Sarcoma.	"	"	Five operations and no recurrence 4 years later.
42	Bellamy, Lond. Lancet, 1888, I, 1075.	46	M.	Epithelioma.	Total.	"	
43	Hind, Lond. Lancet, 1897, II, 214.	42	F.	Myeloid sarcoma.	Partial.	"	
44	Robinson, Lond. Lancet, 1891, I, 1153.	55	M.	Spheroid-celled carcinoma.	Total.	"	
45	St. Thomas's Hosp. Rep., N. S., Vol. XVII, 334.	55	M.	Epithelioma.	"	Died 10th day.	Septic pneumonia.
46	St. Thomas's Hosp. Rep., XVIII, 410.	36	M.	Spindle-celled sarcoma.	"	Recovered.	Recurrence in 1 month and death.
47	St. Thomas's Hosp. Rep., XVIII, 410.	47	M.	Round-celled sarcoma.	"	"	
48	St. Thomas's Hosp. Rep., XIX, 409.	. . . .	M.				
49	St. Thomas's Hosp. Rep., XIX, 409.	. . . .	M.				
50	St. Thomas's Hosp. Rep., XIX, 409.	. . . .	M.				
51	St. Thomas's Hosp. Rep., XIX, 409.	. . . .	F.				
52	St. Thomas's Hosp. Rep., XIX, 409.	. . . .	F.	Sarcoma.	"	"	One recurrence.
53	St. Thomas's Hosp. Rep., XX, 397.	47	M.	"	Left, total.	"	Recurrence 2 years.
54	St. Thomas's Hosp. Rep., XXI, 391.	22	F.	Carcinoma or adenoma.	"	"	
55	Deaver, Univ. Med. Mag., 1891-92, IV, 651.	32	F.	Osteo-sarcoma.	Right, total.	"	
56	Plascenia, Crón. mèd. quir de la Habana, 1888, XIV, 382.	18	M.	Sarcoma.	Total.	"	
57	Plascenia, Crón. mèd. quir de la Habana, 1888, XIV, 489.	. . . .	M.	Encephaloid sarcoma.	"	"	
58	White, Sacramento Med. Times, 1887, I, 127.	23	M.	Malignant epithelioma.	Left, total.	"	

Cases of Removal of One Superior Maxilla.—(Concluded.)

No.	Reference.	Age.	Sex.	Kind of Tumor.	Part Removed.	Result.	Remarks.
59	Mynter, Med. Press, West N. Y., Buffalo, 1887, II, 487.	61	M.	Sarcoma.	Right, total.	Recovered.	
60	Baudet, Mèm. et Bull. Soc. de Mèd. et chir. de Bord., 1890-91, 343.	. . . .	. .	"	Total.	"	
61	Raingeard, Gaz. Mèd de Nantes, 1887-88, VI, 155.	14	M.	Fibro-mucous.	"	"	
62	Barter, Indian Med. Gaz., Calcutta, 1887, XXII, 43.	. . . .	. .	. . . . .	"	"	
63	Barter, Indian Med. Gaz., Calcutta, 1887, XXII, 43.	16	F.				
64	Crawford, Indian Med. Gaz., Calcutta, 1887, XXII, 78.	22	M.	Fibro-cartilage.	Right, total.	"	
65	Crawford, Indian Med. Gaz., Calcutta, 1887, XXII, 78.	. . . .	. .	. . . . .	Left, total.	Died 1½ hours after op. from shock; considerable time spent in attempting to enucleate tumor.	
66	Rocha, Brazil Med. Rio de Jan., 1890, V, 304.	17	M.	Polypus.	Right, total.	Recovered.	
67	Westminster Hosp. Rep., Vol. III, 228.	. . . .	M.	Sarcoma.	. . . . .	"	
68	Westminster Hosp. Rep., Vol. VIII, 321.	. . . .	M.	Epithelioma.	Excised part.	"	
69	Westminster Hosp. Rep., Vol. IX, 280.	. . . .	M.	Sarcoma.	Excised.	"	

Cases of Removal of Both Superior Maxillæ.

No.	Reference.	Age.	Sex.	Kind of Tumor.	Part Removed.	Result.	Remarks.
1	Servais (Antwerp), Lond. Lancet, 1887, I, 372.	9	M.	. . . . .	Nearly complete.	Recovered.	
2	Servais (Antwerp), Lond. Lancet, 1887, I, 372.	. . . .	F.	. . . . .	"	"	
3	Jessett (Antwerp), Lond. Lancet, 1887, I, 372.	35	F.	. . . . .	"	"	
4	Veve Crón. méd. de la Habana, 1889. XV, 320.	19	M.	Osteo-sarcoma.	Total left and partial right.	"	
5	Godlee, Tr. Clin. Soc., Lond., 1886-87, XX, 260.	55	M.	Squamous epithelioma.	Total in 2 operations.	"	First operation on lower parts, both maxillæ.

CLINICAL LECTURE ON TWO CASES OF BASIC CARDIAC MURMUR.[1]

By James Tyson, M.D.,

Professor of Clinical Medicine in the University of Pennsylvania.

The first patient presented is an unmarried woman, now 31 years old, who has been under our observation in this hospital for a number of years, having been first admitted as far back as September 30, 1891. Her father died of dropsy, a fact which may have some bearing in this case; her mother is still living; one sister died of Bright's disease, and two others of unknown causes. She also has three sisters living. Her own previous history is that of the diseases of childhood, she had measles only. When 17 years of age she had her first attack of inflammatory rheumatism. Five or six years ago she was treated in this hospital for articular rheumatism, and previous to this she had been treated in the Pennsylvania Hospital for the same trouble. She remained in the hospital for five or six months. She has also had other attacks. You will note, therefore, that she has been subject to rheumatism for fourteen years. On September 19, 1891, the patient complained of headache and sickness at the stomach after returning from her work, she at that time being employed as a mill-hand. On September 27 were added shortness of breath and pain in the region of the heart, and on the 30th she was admitted to this hospital with these symptoms, and swollen hands and feet. She improved under treatment, and at the end of four or five months was discharged, and attempted to go back to work, but was compelled to return to the hospital. She again improved and was discharged. These attacks continued to recur until three years ago, when she came into the hospital again with inflammatory rheumatism, and since then has been here almost continuously. The edema of the hands and feet disappeared under treatment, and never again returned.

We have plainly, therefore, a case demanding a physical examination of the heart, which we will make in a systematic manner. Upon inspection of her chest the most conspicuous sign that I notice is a pulsation in the suprasternal notch; also a pulsation above the inner end of each clavicle. Over the left precordium a diffuse wave-like impulse, extending from the second rib on the left side to the neighborhood of the apex, at which it is more marked, but is still quite diffuse and uncircumscribed. I further observe that the left precordium is somewhat more bulging than the right. You observed so

[1] Clinical lecture delivered at the University Hospital, November 7, 1895.

just above the inner end of the clavicles, a slight oscillatory pulse which, when compared with the carotid pulse, is found to just precede it, while the collapse is systolic. It is in the jugular vein and is called the *false* jugular pulse, is contrasted with the true jugular which is systolic and pathognomonic of tricuspid regurgitation.

Upon palpation, at the base of the heart I get at once a distinct, easily recognizable thrill, even more marked in the suprasternal notch, conducted from the great vessels under it, the aorta itself, or its branches. Carrying my hand over the left precordium I search for the apex-beat, which I find in the sixth interspace, almost as far out as the line of the anterior fold of the axilla. It is not so markedly felt here as in the fifth interspace, but it certainly extends to this point. Upon percussion to the left of the sternum, just below the clavicle, at a spot where ordinarily I am sure to get resonance, I make the first tap with a clear response, but on the second rib I find an impairment of resonance, which in the second interspace is very plain. On going down to the third rib, it is, however, even more manifest than it is at the second. I may say, then, that the relative dulness in this girl's case begins at the second rib, and the absolute dulness at the third rib. The absolute dulness is the dulness furnished by percussing the heart uncovered by the lungs. It is evident, therefore, that some of the cardiac area goes up higher here than it does in health, the third rib being the line of relative dulness, and the fourth rib the line of absolute dulness in health. To determine the right border of the heart I begin to percuss in a vertical line a little to the right of the right edge of the sternum, and about opposite the fourth cartilage, and moving towards the left I get absolute dulness at the middle of the sternum, and relative dulness at the right edge of the sternum, about the normal situations. The lower border of the heart is not easily determined by percussion, because of the fusion of the cardiac dulness with that of the liver. It is sufficient for the purpose to draw a line from the seat of the apex across to the sternum. This will be the lower border of cardiac dulness. To get the oblique left border of cardiac dulness it is sufficient to draw a line from the apex to the left third cartilage, where absolute dulness was obtained. This gives a rude triangular or quadrilateral space, and it is evident from this that there is a very marked enlargement, the perpendicular line being about four inches instead of a maximum of two and a half, and the base fully four and a half instead of a maximum of three. I have now mapped out the heart, and find it very much enlarged towards the left.

On auscultation in the aortic area at second interspace, to the right of the sternum, I get a double murmur, a typical steam-tug murmur,

both elements being quite loud and rough, obliterating the normal heart-sounds completely. The first or systolic element occurs unquestionably at the time of the first sound of the heart, in fact replaces it, as the first sound cannot be heard. It is carried up into the carotids, but I do not notice that the diastolic portion of the murmur is at all carried into these vessels. Carrying my stethoscope down ward, however, I find the systolic factor of the double murmur changes, grows fainter, while the diastolic maintains itself for some distance towards the apex and down the left edge of the sternum. Before the apex is reached the systolic murmur which is also heard downwards with considerable loudness fades away and is replaced by another murmur at the apex and beyond in the axilla.

To sum up: we have a marked impulse in the suprasternal notch extending into the carotids, a jugular pulse alternating with the carotid pulse, a diffuse wave-like impulse over the entire left precordium, some bulging of the latter, a basic thrill, a displaced apex-beat, and other evidences of enlargement of the left ventricle; also a double basic murmur in the aortic area, the systolic factor being conducted into the neck, the diastolic towards the apex and down the left edge of the sternum. Also another systolic murmur at the apex. These are the data for a diagnosis. Let us go back to the physical signs and simply decide what we are justified in concluding. We have a double basic murmur, which clearly, in accordance with its situation, is produced at the aortic orifice, with a systolic and a diastolic factor. Let us take up the two factors separately, and first the one as to which our conclusion is least likely to be disputed. This is undoubtedly the diastolic, and there can be no doubt it means aortic regurgitation, due to insufficiency of the valve. This insufficiency need not necessarily be caused by valvular defect. It may be a relative insufficiency caused by dilatation of the aorta. It is, however, an insufficiency, and you can explain it as you please for the present. Now let us take up the systolic murmur. This may mean one of two things; it may mean stenosis, or narrowing of the aortic orifice, or it may be caused by simple roughening. This roughening may be just outside of the heart in the aorta, or it may be on the valve. We have to consider which is the more likely to be present. Is it simply aortic roughening associated with incompetency, or is it an aortic stenosis? In deciding this question, we must take into consideration, first, the history of the case. We have in this particular case a history of repeated attacks of rheumatism, with early valvular disease, at a time when she could not have been more than 20 years old. There must, therefore, have been acute endocarditis, or, more accurately, valvulitis, since which there have been recurring attacks. Hence, it is more than likely there has

resulted some permanent valvular defect producing stenosis of the orifice. The valves are probably thickened, stiffened, retracted, and do not open sufficiently to allow the blood to pass out without a murmur. If there was a systolic murmur only we would be aided in the diagnosis of its cause also by the marked hypertrophy. For where there is a simple roughening of the aortic orifice we do not have much of any hypertrophy of the left ventricle. But it happens that there is here also aortic regurgitation, itself a potent cause of hypertrophy of the left ventricle. We cannot, therefore, avail ourselves of this hypertrophy, and must decide the question mainly by the history, which, under the circumstances, I think, is sufficient.

Now, as to the diastolic murmur. I told you it can mean only one thing, and that is regurgitation at the aortic orifice. But is this due to structural disease of the valve, or is it due to dilatation of the aorta, and is the regurgitation the result of relative insufficiency? Here, too, the history of the case and the condition of the left ventricle come to our assistance.

We have in the first place the history of rheumatism, recurring at intervals throughout a period of fourteen years. Here, too, we have to do with a large hypertrophy of the left ventricle, greater than would be likely if there were dilatation alone. But also we have decided that there is stenosis of the aortic orifice. And it is hardly likely that a chronic valvular defect causing stenosis could exist for fourteen years without some retraction of the valves. All inflammatory connective tissue tends to contract in the course of time, and such *con*traction would produce *re*traction of the valve making it so as to be incapable of covering up the orifice when it should do so, causing insufficiency from valvular defect and not from dilatation of the aorta. Further, if there were here an aneurism, we would have at least one or two of the other signs of aneurism besides relative insufficiency. It is true there is a thrill in this case which is often a symptom of aneurism, but in aneurism the situation is different. It is here directly over the heart itself, towards its base, whereas in aneurism it is at either side of the manubrium. I might have said, also, that a thrill with systole over the base of the heart is a sign of stenosis rather than roughening. The remaining valvular affection in which we are most likely to have a thrill is mitral stenosis, which gives us a presystolic thrill at the apex. Again, as against aneurism, there is the absence of any of the causes which produce the endarteritis and arterial sclerosis, which is the fundamental condition of all aneurisms. She has not been intemperate in eating or drinking; she has not had syphilis; she has not been subject to muscular strain, or to any cause which brings about inflammation of the arteries, except

it be the forcible impulse of the blood against the arch of the aorta. I do not think that the aorta is ever dilated to a degree which will justify the term aneurism by the increased arterial pressure without there is primarily some defect of the vessel walls. There may be some slight dilatation of the aorta here due to the perpetual pounding of the blood against the aortic wall, but this is not aneurism. I conclude, therefore, that there is in this case a true valvular disease responsible for the stenosis and the regurgitation.

To emphasize what I have said in regard to the difficulties of diagnosis under these circumstances, I must show you this heart, from a patient who had a double basic murmur like that of the patient before us. The diagnosis here was made of aortic stenosis with insufficiency. At the autopsy were found absolutely perfect aortic valve-cusps, but outside of the valve was the aneurismal dilatation of the aorta which you see.

There are other features in this case which need explanation and from which conclusions may be deduced. First, there is the mitral systolic murmurs which can only mean mitral insufficiency. I also called your attention to the fact that we found a dulness in the second interspace and on the second rib to the left of the sternum, where we do not have dulness in health. Now how do we explain this? I believe it is due to hypertrophy of the left auricle. Here is a patient in whom we have hypertrophy of the left ventricle with mitral regurgitation and absolutely perfect compensation. There is no congestion or obstruction in her lungs. She did, however, for a short time after one of her earlier admissions to the hospital have some loss of compensation, as manifested by some edema. For a time she was unfavorably situated, but the balance was restored by heart-tonics and rest. The left auricle set itself to work to compensate for the defect in the left ventricle. The case affords an admirable opportunity to trace backward the events (conservative and retrograde) in the history of a case of aortic valve-disease, events which come sooner or later. Starting with aortic stenosis and insufficiency, the first event is conservative, consisting in hypertrophy of the left ventricle. Both stenosis and insufficiency alone produce hypertrophy, the former because of the extra force required to force the blood through the narrowed orifice, the latter to propel the increased mass of blood accumulating in the ventricle from two directions, the left auricle on the one hand and the regurgitation from the aorta on the other. If aortic regurgitation and aortic stenosis each alone produce hypertrophy, the two together must, therefore, produce still more hypertrophy, and the result is the largest heart morbid anatomy affords us. Our patient's heart shows this increase in size. Compensation

was at first made up by the left ventricle. Sooner or later, under any circumstances, this hypertrophy gives way to dilatation.

Let me digress here a moment to contrast hypertrophy and dilatation. In hypertrophy there is thickening of the walls of the heart, but the cavities remain the same size or more frequently are enlarged *pari passu.* In dilatation there is enlargement of the cavities, but the walls are relatively thin. Where there is, as in this case, an enlargement of the cavity and thickening of the wall, the term hypertrophy with dilatation is sometimes applied to it. It is also called eccentric hypertrophy. Where the cavity remains the normal size and the walls are thickened, it is called simple hypertrophy. We have therefore two kinds of hypertrophy,—simple and eccentric.

As the dilatation goes on the cavity grows too large to permit the valves to cover by their closure the mitral orifice, and the valve becomes relatively incompetent. There is superadded the physical sign of mitral systolic murmur which we have here. If this takes place, compensation cannot be re-established without hypertrophy of the left auricle. This, we have seen, has also taken place in this case. The left ventricle was insufficient to maintain the compensation. It gave way and produced relative insufficiency. If we were to look at the mitral valve we would not necessarily find it diseased. It is simply insufficient. Sooner or later this hypertrophied left auricle may become a dilated left auricle. Then the blood tends to accumulate in the lungs. The right ventricle comes to the rescue to overcome this. It hypertrophies. There is then superadded dulness to the right of the right edge of the sternum; also accentuation of the pulmonary second sound, because in consequence of the high tension of the blood in the pulmonary artery the semilunar valve of this vessel shuts down with a sharp snap. This has not as yet taken place here, for there is little or no hypertrophy of the right ventricle. In the course of time, however, the hypertrophy of the right ventricle may give way to dilatation, when we will have relative incompetency of the tricuspid valve and regurgitation at this orifice, and along with this a tricuspid systolic murmur heard loudest to the left of the lower end of the sternum. The right auricle makes little resistance, as a rule, and the blood is backed into the venous side of the circulation, and we have general venous engorgement; engorgement of the liver and kidneys, dropsy and effusion into the serous cavities, and sometimes jugular pulse and pulsating liver, which are pathognomonic of tricuspid regurgitation. This jugular pulse is the *true* jugular as contrasted with the false jugular above referred to, which means simply turgor of the circulation, and may occur in a perfectly healthy person after verus.

The next patient illustrates what I desire to bring out to-day, but in a different manner. He is a miner, and has been a very hard worker, having occasion to use much muscular strength, and we found upon examination that he had hypertrophy of the left ventricle, with a systolic murmur, which we first assigned to the aortic orifice, and from which we made a diagnosis of aortic stenosis. In this case we had no regurgitation. A further study of his case developed a very interesting point. We learned that instead of the murmur being more distinct and louder at the aortic area, it was louder in the pulmonary area, and that there was this additional fact, that the murmur was louder when he lay down than when he stood or sat up. It is also made much more intense by exertion, as by walking up and down the ward. The fact remains that we have a murmur here in the pulmonary area, which dies away as we pass over to the rest of the heart, and is associated with hypertrophy of the left ventricle. We were surprised at this state of affairs. We examined his blood, and were equally surprised to find that he had fully 100 per cent. corpuscles and hemoglobin. It could not therefore be a hemic murmur. There came also to our rescue another fact. We found some evidence on percussion of dilatation of the aorta. This enables us to explain the pulmonic murmur by supposing that the widened aorta presses on the pulmonary artery while the patient is lying down, stenosing it, and causing the pulmonic murmur. Notice in the drawing on the black-board how the aorta winds around the pulmonary aorta, and you can understand how, if the aorta is dilated, it may thus press upon the pulmonary artery and narrow it. There will also be hypertrophy of the left ventricle to a moderate degree, such as we know is associated with aneurism and dilatation of the blood-vessel. Our diagnosis would be further sustained if we could only demonstrate in this case hypertrophy of the right ventricle. It is natural to suppose that the right ventricle would be hypertrophied, and, if we wanted to strain a point, we might say that there was some hypertrophy, but I am not sure of it.

These cases illustrate very well what I was very anxious to bring out, a contrast between basic murmurs produced at the orifice of each of the great vessels coming off from the heart.

PHYSIOLOGICAL AND SURGICAL MENOPAUSE COMPARED.

By Homer C. Bloom, M.D.,

Instructor in Gynecology in the Philadelphia Polyclinic, and Out-Door Surgeon to the Gynécéan Hospital.

I am fully conscious that a subject fraught with so much interest, not only to the gynecologist, but to medical men generally, should be dealt with purely from a practical stand-point, and not, as is frequently the case, from vague theoretical studies. If there is any apology needed for an additional paper on a subject which has been so thoroughly discussed, it is that what I shall say will be confined to facts derived from a practical study of a large number of these cases.

In making any comparison between two such dissimilar conditions as the natural and the surgical menopause, so far as the immediate act itself is concerned, it will be necessary to understand at the outset the difference between the two.

The physiologic menopause is the normal cessation of a function which has fulfilled in the economy of the woman that condition which is necessary for the reproduction of the species. It is brought about by changes of a retrograde character in the uterus, ovaries, and tubes. It may be abrupt or it may be prolonged, but it matters little so far as the menstrual flow itself is concerned, for this is largely influenced by conditions either local or constitutional; the same structural changes are progressing. While there may be phenomena arising for an incredibly long time that are usually coincident with the cessation of this function, yet this prolongation of the climacteric does not alter the law which governs functional senility, and which makes it the ultimate normal condition.

How directly opposite is the surgical menopause so far as the natural conditions of the individual are concerned.

In a study of this form of menopause a condition entirely different presents itself, for here there is not an abrupt termination of a function which has not fulfilled the period intended by nature, but also a state of the individual which is illy prepared for the absence of so important a phenomenon originally intended to be prolonged until senile changes in associated organs had abolished its *raison d'être*, whose active participation is but the climax of that normal stimulus which equalizes the psychical as well as the physical well-being of the individual.

Noting first of all the general symptoms and history of a typical

physiologic case, we find as far as the menses themselves are concerned most frequently a term preceding their cessation, which is the "dodging" period, or the irregularity which precedes the culmination of certain functions, like the flickering of a flame that is nearing its final extinction.

It is an erroneous idea among the laity, and frequently among the profession, that the change of life is usually coincident with profuse menstruation. There is no more reason for an increase of menses at this period of life than at any other. Indeed, it is more in keeping with those laws which govern functional decay that the flow should be less, and when it is remembered what changes are taking place, it is rational to suppose that any increase is pathologic. From the study of a large number of these cases it will be observed that this is true.

When profuse menstrual or intramenstrual discharge takes place at this period of life, it can be said within the bounds of truth that there is either malignant disease of the uterus, polypi, fibroids, or sarcomatous tumors, plus endometritis.

The next most common conditions to notice are the nervous phenomena arising at the climacteric. When it is remembered that the nervous system itself is probably responsible for the function of menstruation, it must be admitted that in the suspension of this regularly recurring phenomenon, which has been going on during the period of reproduction, there would necessarily be a conflict between those laws which controlled it and the laws which are suspending it. This battle for supremacy induces, in proportion to the psychical condition of the individual, more or less of these symptoms; for it is an undisputed fact that the mind or mental condition largely enters at this time into the equation of these nervous phenomena.

The nervous phenomena in these cases vary very much with individuals; the usual and most prominent symptoms are flushes or flashes of heat, creepy sensations, insomnia, vague pains, and discomforts which cannot be described.

Apprehensions of impending calamities, and a delusion that organic disease is about to ensue; bolus hystericus, suffocatio-hysterica, palpitation of the heart, beating and throbbing of the whole vascular system, nervous bladder, nervous rectum, and, indeed, there are no nervous symptoms that may not be present so far as the minds of some of these individuals are concerned.

It can be stated with certainty that the symptoms of the normal menopause are purely and entirely nervous. Anything else supervening at the climacteric demands the strictest attention upon the part of the physician. To this end the careless routine of ascribing all symptoms to the change of life should be avoided.

There is no doubt, from the indifferent manner in which this period of life is viewed, that often organic disease in its early stages is overlooked, and therefore is wrongly charged to the menopause.

The physiologic process of involution in the reproductive organs at the climacteric gives rise to the following physical signs, which are directly opposite to those that take place at puberty:

The ovaries shrink and shrivel in all directions, sometimes disappearing altogether. The Fallopian tubes diminish in size and often become obliterated. Similar changes in the uterus take place; the cavity becomes smaller, the cervix diminishes in size, and often disappears. The dimensions of the vagina grow less, and its size diminishes very much, especially in women who have not borne children. The mammary glands also participate in this atrophy. All these changes gradually leading to the senile condition which marks the fourth epoch, or that cycle in a woman's life which ends maternity.

The symptoms which are noted above as belonging to the normal climacteric have their counterpart in the surgical menopause with this difference, that in the latter all these symptoms are tenfold more severe, as a rule, and this is not to be wondered at, when it is remembered how illy prepared, from a physiologic stand-point, the individual is.

The most prominent symptoms of the abrupt or surgical menopause are the intense nervous phenomena, taking on almost any form, in different individuals. These, compared with those associated with the natural menopause, are as the cyclone is to the storm. Flashes of heat are most intense, chilly sensations, tinglings, and numbness are experienced. A frequent symptom, and one I have not seen noted, is the burning, parched feeling internally, of which many of these women complain. They express themselves as "burning up inside." Palpitations and throbbing of the internal blood-vessels, muscular quiverings, restlessness, insomnia, and discomforts of all kinds occur. Frequent digestive disorders, such as abdominal distress and distention, accompanied frequently with constipation, bladder irritability, headaches, vertigo, and dyspnea are all present in different cases. Indeed, these symptoms might be greatly multiplied, for there seems to be no condition that can be produced by disturbance of the vasomotor system that is not present in some of these women. Unhappiness and worriment are significant features in many cases, the mind conceiving everything deplorable. One of the most common manifestations of this class is the idea that the personality is no longer feminine, the patient abhorring the thought of being classed in the neuter gender. This morbid brooding over being unsexed is, no doubt, a potent factor in the production of melancholy, suicidal impulses, and even maniacal insanity.

In this connection the question is pertinent, Does the surgical menopause affect the sexual sense, or in any way unsex the woman? There is a diversity of opinion in regard to this very important matter, but speaking from the results of an interview with a large number of these women, this much can be said:

(Before giving this information, it is to be admitted that the time elapsing since the respective operations is scarcely sufficient to warrant positive deductions, and yet I believe the following statements approximate the truth. The cases interviewed cover a period of from one to five years.)

In cases in which celiotomy was done for removal of the appendages, and in women not over 33 years of age, all expressed themselves as having not only sexual desire, but that the intensity in sexual congress in most of them had not materially diminished. Four of them declared that in every sense it was intensified. One of these cases was a woman on whom a section had been performed four years previously for inflammatory disease of both appendages; she had some flow periodically for six months, after which it ceased abruptly, and she has had a most pronounced menopause as far as the nervous phenomena were concerned.

In the foregoing cases there were three who suffered from the most intense pelvic inflammatory disease, in which there were large pus-tubes with great tenderness, in whom sexual congress was unbearable previous to the operations. In the aggregate, as far as this group of cases is concerned, the sexual condition of the patients was little different from that which would be expected in the same number of women in whom the appendages were intact

There is one other point in this connection in which there was a consensus of opinion among these women, and that is the normal vaginal secretions are greatly lessened during coitus.

Another class of cases bearing upon this subject, embracing hysterectomies performed upon women over 33 years of age, gives entirely different information. All of these women, with a few exceptions, declared a gradual lessening of their sexual feeling and desire. Among those in whom there had been performed a total extirpation of the uterus there was almost an entire absence of the sexual passion, and this disappearance was more rapid than after simple ablation of the appendages.

It was further noted that in nearly all of these cases, and especially after the hysterectomies, that the menopausal symptoms are very severe, and seem to be protracted to a much greater degree. It is also noted that coitus, if indulged in, is purely a mechanical act, and often attended with considerable pain after the performance of hysterectomy.

From a study of over 400 cases forming the basis of this paper and covering a period of six years, the conclusions derived from a comparison between the physiologic and surgical are as follows:

(1) That the normal climacteric may be attended by mild or moderately severe symptoms, and that these are usually nervous phenomena.

(2) That as a function that is passing away it has nothing to do *per se* with originating organic disease, nor is it responsible for the ills of matronhood, but that frequently owing to the fact that the coincident intense nervous phenomena mask other less pronounced symptoms, and because of the common delusion that all conditions at this time are consequent upon the change of life, organic disease is often overlooked.

(3) As a physiologic condition nearing its end there should be no menorrhagia nor increased menses, and any discharge over and above the normal amount demands an immediate digital examination.

(4) The length of time in which these women suffer from menopausal phenomena varies greatly. Where the change is brought about abruptly they are longer and more intense; when there is a dodging period, covering a year or two, the symptoms are milder and the phenomena cease more quickly. An average of two years covers the duration of the usual symptoms attending the climacteric.

(5) The average age when menstruation ceased in this series of cases was 43 years and 8 months. The oldest woman in the series to complete her menstrual life was 54. The youngest to reach this point was 29. The averaged puberty was 14 years and 3 months; the youngest woman reaching puberty at 10 years, the oldest being a little over 18 years. The averaged menstrual life was 29 years and 3 months.

(6) Nationality in these cases establishes the old truth that puberty is sooner reached in warm climates, and that the negro women from the South give a history of earlier puberty. Also that there is no positive relation between an early puberty and a late menopause.

(7) As to the sexual sense of women after the menopause, the delicacy attendant upon an investigation of such a subject as the sexual life after this period prevents any special deductions on this point, and yet it is surprising to learn that this life in some women is not dead at a far advanced age.

One case will be noted, which proves that we do not yet know the sexuality in women. The patient in question is a woman, nearly 70 years of age, twenty years past the climacteric, in whom there had been

two apoplectic seizures. She was a widow for many years, but was recently married, and having been advised to avoid any excitement for fear of another stroke, wished to know whether sexual indulgence was contra-indicated. On interrogating her she declared that her sexual sense, her passion, and her gratification were as great, if not greater, than before the menopause.

What has been said relative to the nervous phenomena attending the ordinary menopause will hold good in the deductions to be made relative to the surgical form, with this difference, already noted, that they are tenfold more severe.

As to it being a factor in originating disease of an organic character, it can be set down as a truth that the nerve-storm is so great in some of these women that something must give way; and if there is a systemic predisposition, we find coincident organic disease very much more frequently than after the natural menopause. It is also to be noted that these diseases are more frequently lesions of the nervous and vascular systems.

As a rule, disease in this class of women is hard to treat, and yields slowly and unsatisfactorily to all therapeutic measures.

Hemorrhage or discharge is less frequent in these women.

Often after removal of the appendages a woman may have a periodic flow for months. If the operator has removed all ovarian tissue, it can be set down as merely the uterine habit, if there be no disease of the uterus.

As to the length of time which will elapse before these phenomena incident to this form of menopause will cease, it can be stated accurately they will invariably be much more protracted, even covering in some cases a period of years.

As to the sexual life of these women, there appears thus far to be no difference to be noted prior to 33 years of age. In women after this age, and in whom hysterectomy has been done, it is notably lessened, and in many cases abolished.

In the other sexual characteristics there is no difference; the breasts do not flatten and lose their shape; the women do not become fat; there are no abnormal growths of hair on the face or body; in a word, there is nothing about them to indicate masculinity.

The practical lesson to be drawn from this comparison is that the greatest care and consideration should be shown these women, and that every effort tending to the prevention of the surgical menopause should receive the most careful consideration upon the part of the surgeon.

In this connection I have studied carefully three cases in the last year in which removal of the appendages for grave inflammatory dis-

ease was necessary, and a small fragment of ovarian tissue in each case was left. These women have all made a good recovery, and are practically free from nervous phenomena; they are menstruating regularly, and are happy in the belief that they are women in every sense of the word.

VARICOSE VEINS.[1]

By James J. Walsh, M.D.,[2]

(Concluded from page 282.)

Complications of Varicose Veins.

There are four chief complications of varicose veins. Rupture of the atrophied degenerated walls, with furious bleeding from the large patulous veins, the blood often coming in jets as from an artery due probably to the involvement of the capillaries in the varicose process.

Phlebitis, or inflammation of the intima of the vein due to the weakened venous tissue not being able to resist infection from micro-organisms. These find their way to them either through the blood-current or through the more or less thinned cutaneous tissues above.

Varicose ulcer, a chronic ulcerative process in the lower part of the leg that has its origin in some slight traumatism and consequent infection, and owes its persistence and obstinacy to treatment to the generally lowered vitality of all the tissues of the leg, on account of the venous stasis.

Finally, chronic eczema sometimes arising spontaneously, sometimes after the use of some of the various forms of support, is a very

[1] The thesis to which was awarded the Dr. Louis J. C. Kimmel Prize, Medical Department, University of Pennsylvania, 1895.

[2] Varicose veins was chosen as the subject for a thesis because it is an affection that in some form or other comes to the surgeon for treatment almost oftener than any other. It was hoped at the beginning to illustrate it by microscopic sections of varicose veins from various parts of the body; but radical operations for their relief were not frequent enough to give the opportunity for this.

The subject is so large that only the main features of it could be dwelt upon. The etiology of varix it is that is of chief interest in our day, and it is to this part of the subject that most attention has been devoted by the writer. The opinions as to the true cause of varix are really no more definite now than they were years ago, and the conclusions in the thesis have been necessarily a reflection of this state of affairs. As regards treatment, palliative as well as radical, only the principles that underlie sound rational treatment could be pointed out, and the general methods of the more important radical operations indicated.

Anything in the recent literature of the subject that has promised help has been freely consulted, and the material thus collected as freely used.

Special thanks are returned to Professors White, Guitéras, and Penrose for opinions and suggestions

common form of complication. Like the varicose ulcer, it has its origin in the lowered vitality of the part, perhaps also in the repeated slight infections with irritative micro-organisms.

Rupture of the varicose veins may take place in any situation where they occur. When they rupture in an internal organ, they often give rise to serious, even fatal hemorrhages. Professor Studenski's case, referred to before, where the patient died from rupture of a varicose vein in the esophagus, is but one of at least six similar cases that are reported in literature. Rupture of a varicose vein in the broad ligament has given rise to immense pelvic hematocele and death. These blood tumors of the pelvis are usually due to ruptured extra-uterine pregnancy, but gynecologists insist that they have their origin also in ruptured varicosities. Varicose veins are ruptured oftenest in the rectum. Here the frequent passage of feces makes them liable to slight traumatism and consequent hemorrhage, and from this the affection derives its name,—hemorrhoids. Such bleeding used to be looked upon by older surgeons as constituting a valuable derivative, and a certain amount of hesitation was felt in taking measures to stop it. Especially was this the case where it seemed to occur at regular intervals. Like the fear that the eruption of an infectious fever might strike in under local treatment, and so cause more serious trouble internally, or the idea still prevalent among the laity that the curing of a chronic skin-disease may lead to the retention in the system of poisons eliminated before through the diseased portions, the beneficial derivative influence of hemorrhages from varicose veins is now smiled at by the profession generally, though it does seem that in some of the plethoric cases, or where the bleeding takes the place of the menses, to some extent, the ideas of the older surgeons were not without foundation. The rupture of varicose veins in the rectum is very seldom followed by serious hemorrhages. Their danger is rather the constant drain upon the system, from the frequent small hemorrhages and the consequent anemia. It is this that calls at once for operative measures, though it is sometimes hard to make patients understand it: I have known quite a prominent physician to refuse for years to allow an operation, though his anemic condition made it difficult for him to keep up his profession.

Varicose ulcer, as we have said, is really due to the lowered vitality of the tissues in the varicosed leg. This state of lowered vitality affects not only the blood-vessels, but also the lymphatics and nerves. The metabolism of the tissues in the part is sadly interfered with. Nutritive material finds its way to the part slowly, or is hurried

past the needy tissues by dilatation of the capillaries, and consequent arterialization of the blood-current through them. The lymphatics are involved in the chronic inflammatory process, and their failure to promptly remove material that has been exhausted of nutritive qualities by the tissues, leads to the breaking down under slight traumatism or infection, and intractability afterwards.

Finally, the nerves in the part suffer, and their trophic influence is distinctly lessened by their own poor condition. This trophoneurotic character of varicose ulcers has been insisted on of late by some of the French writers, notably Quenu, who finds that they are often preceded by anesthetic patches and changes in the hair of the parts.

Chronic eczema, where allowed to continue uncared for, often becomes a serious complication. Gradually it leads to great thickening and roughness of the skin, to what is really limited chronic cellulitis and phlebitis, by always providing in the cracked and weakened tissues an easy mode of ingress for bacteria.

Diagnosis.—The diagnosis of varicose veins in any situation usually presents no difficulties. The lengthened, tortuous, irregularly-thickened veins are always easily seen and felt. At times the chronic edema caused by the constant venous congestion and interference with lymphatics by pressure and malnutrition of the part may give rise to atypical appearances. Billroth[1] calls attention to induration of the skin and subcutaneous tissue of the leg, a chronic state of inflammatory infiltration that is not infrequently present. When this process affects also the adventitia of the veins, they lie immovable and glued down by the infiltrate and in the firm leathery skin, they feel like half-canals or gutters running over the deeper tissues.

The two favorite spots for beginning superficial varices to become visible are the outer ankle just below and behind the outer malleolus, and the outer part of the leg over the head of the fibula. As the careful regulation of the patient's life may prevent the varicosity from becoming general, it is important to examine these regions when the patient comes complaining of a sense of weight in the limbs. The peculiar crampy pains mentioned by Bennett, and described under the symptoms as occurring in beginning varix, may, if confirmed by the observations of others, prove a valuable pathognomonic sign that will serve to warn the surgeon of the process that is at work, and enable him to direct such changes in the patient's mode of life as may hinder its further progress.

[1] Billroth's Surgical Pathology.

The varieties of hemorrhoids present some difficulties of diagnosis at times. The two chief varieties, internal and external hemorrhoids, differ essentially anatomically, and, as the treatment is very different, the diagnosis must be carefully made. It is not really difficult, however, external hemorrhoids consisting of a dilatation and chronic thickening of the inferior hemorrhoidal vessels. They are always situated outside the sphincter ani, and usually spring from the muco-cutaneous junction, having a covering on one side of mucous membrane, and on the other of skin. When acute, and it is in this stage that the surgeon usually sees them, they are little reddish or bluish tumors, extremely sensitive, and giving a great deal of annoyance. A certain amount of pouched dilatation of these veins seems not abnormal, but it is the frequent irritation of one or more of the dilated veins during defecation, weakened as they are in vitality by over-distention, and liable by their exposed situation to infection with micro-organisms, that causes inflammatory exudation into the tissues around them, leads to rupture and the formation of a clot, and so gives the symptoms of an acute attack of piles. After the inflammation has subsided, there remain small tags of tissue, more or less insensitive around the sphincter, chronic external piles.

Internal hemorrhoids are usually bluish tumors, sometimes projecting beyond the sphincter when the patient bears down, more often coming out only after defecation. When the varicose process has continued for a considerable time in the lax tissues of the rectum, the heat and moisture and frequent disturbance by passing feces tend to foster inflammatory processes; the capillaries become involved and the columns of the rectal mucous membranes. These constitute bleeding piles, usually discoverable only by sight and touch with the finger or probe,[1] the latter causing characteristic hemorrhage.

With regard to hemorrhoids, mistakes are made only by failure to examine carefully. The laity call all affections of the anus piles, so that every case requires examination. Even where the subjective symptoms seem clear, especially in women, this is very necessary. S. Weir Mitchell[2] has described various hysterical affections of the anus that give symptoms simulating some of those of hemorrhoids.

Varicocele.—In the scrotum the veins give the characteristic earth-worm feeling. They are reduced in size upon lying down, and so simulate a hernia, but they may easily be differentiated by the peculiar nodular feeling of the tumor, and by the fact that upon rising it cannot be retained by pressure, though it does not

[1] Allington, Sr. and Jr., Diseases of the Rectum, 1888.
[2] Lectures on Nervous Diseases.

return at once, but by degrees, as the veins become gradually distended. Usually there is no impulse on coughing, but sometimes the increase of abdominal pressure sends down a wave of fluctuation that simulates the impulse of hernia.

Treatment.—The first principle in the treatment of varicose veins will be the removal of any causes still acting that may have been or seem to be predisposing or exciting factors in their formation. There is at least the hope of preventing their further extension, and it will usually be found the most efficient means to lessen the symptoms. Articles of wearing apparel, as tight garters or corsets, that have a tendency to cause venous obstruction, must be discarded. Occupations that require much standing must be given up or modified. All irritations of the genito-urinary tract must be treated, and if possible completely relieved. This is of prime importance. Amenorrhea and other disorders of the menstrual function call for attention at once. These procedures constitute what may be called the indirect treatment of varicosities.

Bennett points out that next to constipation suppressed menstruation seems to be a causal factor. It gives rise not to coarse but to fine varicosities, usually confined to the thighs and occurring in both. The veins are radiating and stellate, the legs being somewhat edematous and painful, but seemingly free from varicose disease. There are often minute cystic dilatations in the veins, pin-head in size. These occasionally rupture spontaneously or after exertion or some slight traumatism. The hemorrhage is often subcutaneous, and gives the appearance of multiple points of bruising; "black and blue" areas appearing on the thighs that may raise a question as to diagnosis.[1] The remedy for these varicosities is the treatment of the amenorrhea that is the cause of them. When the varix has once been formed, however, it will not cure the condition, but it will relieve the symptoms.

The same may be said for the treatment of hemorrhoids. Pelvic congestion from any cause is liable to give rise to varicosities in the hemorrhoidal veins by interfering with portal circulation. The many causes of uterine congestion, such as displacements, stenosis of the cervix, endometritis, and subinvolution come into play here, and treatment of the hemorrhoids is apt to be futile unless the uterine condition is first corrected, when the piles will usually disappear or cease to give trouble.

Various affections of the bladder and urethra act in the same way, especially when they cause straining or tenesmus. A stricture

[1] I saw such a case in the service of the Southeastern Dispensary recently, and was at first almost inclined to doubt the history that there was no traumatism in the case.

of the urethra, hypertrophy of the prostate, a tight or adherent prepuce, a stone in the bladder, or a vesical polyp, posterior urethritis and its complications, any of these may constitute the real causal factor of hemorrhoids, and it is to them that attention must be first directed if the rectal trouble would be relieved.

Affections of the rectum itself, or of the anus, as stricture of the rectum or malignant growths or fissure of the anus, are very liable to cause hemorrhoids, and should be looked for carefully when the examination for piles is made. When the piles are due to any of these causes, treatment of the affection itself will seldom do any good, while the symptoms will be usually relieved at once and the hemorrhoids will often disappear if the cause is removed.

Interference with the portal circulation, either functionally by congestion or what is called a sluggish liver, or organically by cirrhosis or malignant disease, are frequent and direct causes of hemorrhoids. The first symptom of a cirrhosed liver that a patient comes complaining of is often a bad attack of piles. Of course, the treatment must be directed primarily to relief as far as possible of the hepatic condition. Where there is notable involvement of the liver, it does not contra-indicate operation for radical cure if the hemorrhoids are giving a great deal of trouble so as to seriously interfere with the patient's general health, or are causing frequently repeated bleeding, so that the patient is sinking into a condition of anemia.

It must be remembered that affections of the liver are not infrequently a source of varicosities of the legs, especially when the condition exists in both legs and is accompanied by piles. A free mercurial purge occasionally will often relieve the symptoms in such cases by relieving the congestion of a sluggish liver.

The direct treatment of varicosities varies according to their location, and is either palliative or radical. The indications for treatment are nearly the same wherever they occur; the sense of weight and fulness that after a while become as dull each is to be relieved. The principle that underlies all treatment is to support the long column of blood that gives the sensation of weight and drags on the thinned vein walls, by providing artificial support for the veins, and especially by the careful avoidance of any conditions, physiological or pathological, that may cause venous congestion.

Long-standing, leading as it does to more or less venous stasis in the legs and pelvis, is to be avoided as much as possible. Constipation on account of the influence of a distended sigmoid on the return venous circulation must not be allowed to continue, and people affected with varicosities are usually of a constipated habit. The gentler laxatives, as cascara, compound licorice powder, aloes, or sul-

phur, are the best for thorough but mild relaxation of the bowels; these often give a sense of relief in cases of severe varicosities that would scarcely be expected from so simple a measure.

For Special Forms.—Varicose veins of the leg are especially relieved by artificial supports. Where they are limited to particular parts, as the knee or the ankle, elastic compression, if applied immediately over the region affected, may be employed, and various apparatus have been devised for this, but as they act as constricting bands, and so interfere with the circulation, they are liable to do more harm than good. For extensive varicosities there are various rubber stockings employed, and they undoubtedly afford great relief. There are certain objections to them, however. They are expensive, rot soon from the secretions of the skin, do not allow evaporation, and otherwise irritate the skin, and so lead to intractable eczema. They very soon cease to fit from loss of elasticity and also from lessened edema of the limb; the serous infiltration of the tissues gradually decreasing under the influence of pressure. Martin's rubber bandage is open to most of the same objections. Woven elastic stockings or bandages allow the skin secretions to escape, and are the best of appliances sold for the purpose. Flannel bandages carefully and firmly applied make a very comfortable, effective, and inexpensive support. Usually there is some one near the patient who can after a little practice apply the bandage properly, or he can be taught to apply it himself. The natural resiliency of the woollen cloth furnishes an excellent, gentle, elastic support. It absorbs the skin secretions, its porosity allows for ventilation, and it may be washed at regular intervals.

The bandage form of dressing seems the best, for as the edema decreases, as it will under the gentle pressure and constant support of a properly-fitting dressing, it can be made to accommodate itself to the change in size of the limb. A stocking will either have to be ordered too tight at first, when it will cause serious inconvenience or unbearable discomfort, or it will become in the course of a short time too large and ill-fitting, failing then to accomplish its purpose as a support. Where for milder cases elastic stockings are used, the surgeon himself should see that they fit properly. They should be fitted after the patient has been lying down for some hours, and when he walks should give no serious local discomfort. They should not be held up by a constriction of the upper end, for this acting as a garter would increase the tendency to venous engorgement.

Where the varices exist only below the knee, the support should be carried to just above the knee. Where the thigh is also involved, it will have to be carried, if possible, some distance above the highest existing varicosity; but in this region supports are very unsatisfac-

tory. The supports are to be left off at night, and the skin bathed with alcohol or some stimulating lotion. Perfect cleanliness is to be enforced, the slightest carelessness in this matter precipitating eczematous conditions of the skin that are very obstinate to treat. Cold baths with astringent washes and elevation of the limb when the sense of weight and fulness becomes troublesome will often prove of great relief in mild cases. If taken in the middle of a summer day, when varices are most troublesome, they will often enable the patient to go on with his work with much more ease. Bennett[1] has reported some cases of thrombus following cold baths in the debilitated, so that in such cases they are to be advised with due regard to such a complication.

For varicocele, one of the many forms of scrotal support will be very useful for the relief of the physical symptoms. It should be of woven material rather than rubber, so as to allow of ventilation, the escape of secretions, and thus prevent the scrotum from becoming disagreeably hot and sweaty. As in varices of the legs, so here astringents after prolonged standing or walking will help to relieve the symptoms. The mental symptoms that so often accompany varicocele are to be dealt with mainly by the personal influence of the surgeon over his patient and the positive assurance that his sexual potency has not and will not suffer from the condition of his veins. Except in the case of confirmed sexual neurasthenics most of the symptoms of varicocele will disappear after 25.

Hemorrhoids.—External piles require treatment only when acutely inflamed. The best treatment for them then, and it is such a simple procedure that it scarcely deserves the name of radical treatment, is to lay the pile open and turn out the clot. It will heal readily, and relief is almost immediate. No anesthesia is needed[2] except where in very sensitive persons two or three or more are inflamed at once. In such a case local anesthesia by cocaine may be attempted, but is rather unsatisfactory, or it may be done in the first stage of ether narcosis, the patient himself holding the cone, his relaxing his grasp on it being the signal for cutting. Where this simple operative procedure is objected to, applications of belladonna and opium may be employed, or, better still, rest in bed with an ice-bag applied to the part. Sometimes cold applications do not bring as much relief as warm ones.

Palliative treatment for internal hemorrhoids consists mainly in attention to the state of the bowels and thorough cleanliness. The

[1] Lectures on Varices, Lancet, 1889.

[2] Professor White simply has the patient lean over a chair in his office, and after cutting the pile puts on a pad and T-bandage and allows him to go.

gentler laxatives, especially compound licorice powder and sulphur, often give complete relief, and patients who have suffered with piles for years announce themselves as cured after their use for a time. Sulphur has fallen into a disuse it does not deserve, and I have seen two cases of piles, both in men, where the affection had given a great deal of trouble for thirteen and seven years respectively, completely relieved by as simple a remedy as a teaspoonful of sulphur in a glass of milk at bedtime. Where the sulphur causes the production of a good deal of offensive gas, its efficacy as a laxative is interfered with, and it should be discontinued. Washing with cold water after each stool, or a cold douche applied to the anal region are very useful. A jet of cold water seems to have a certain reflex tonic action in addition to the astringent and soothing action of the cold liquid that it is well to take advantage of in the treatment of hemorrhoids. Where the piles give a great deal of trouble during the day, it is well to have the patient form the habit of going to stool just before retiring, if possible. After defecation the hemorrhoids should be completely reduced, a thorough wash with cold water, even ice-water, given, or better, a jet of cold water used for a few minutes, and then the patient retires for the night. The next day the varicose tumors are not so congested, do not so soon provoke tenesmus or become prolapsed, and much of the sensation of fulness and weight is absent. An astringent ointment may be used, and will add to the effect of the cold and rest in emptying the over-distended hemorrhoidal vessels. Kelsey[1] recommends an ointment of subsulphate of iron (℥i to ℥i) as combining the advantages of all the others. Professor Wood recommends a half ounce to an ounce of a saturated solution of chlorate of potash combined with a few drops of laudanum, injected into the rectum once or twice a day and retained.

Radical Treatment.—The principle underlying the radical treatment of varicose veins wherever they exist is the same. It is the obliteration of the pathologically distended and tortuous veins. As the varicosities are not due entirely to local causes, but in some way depend on the idiosyncrasy of the individual, and as this idiosyncrasy is liable to reassert itself with regard to the new venous channels that will take the place of the old, it cannot be considered a radical cure. The causes, however, that led to the formation of the old varicosities may no longer be at work, or changed circumstances in the individual and constant care of his general health may make it easier for him to escape after operation certain etiological factors of varix that were active before, so that there is often a reasonable hope of non-recurrence. When the varicosities are giving a great deal of annoyance,

[1] Diseases of Rectum and Anus.

when they give rise to such inconvenience as to keep the patient from his occupation, or when they are either the source of serious hemorrhage, or are from thinning of their walls easily liable to become such on slight traumatism, then they may be operated on for what it is hoped may be a radical cure. For varicose veins of the legs, Phelps considered the following indications to justify operation:

(1) When the patient wishes to enter the army or navy and is prevented from passing the necessary inspection because of his varicose veins.

(2) When there is danger of hemorrhage from the thinned distended veins.

(3) When they give rise to intractable chronic eczema or to chronic varicose ulcers that obstinately refuse to heal.

(4) When they cause swelling and weakness of the legs, and so prevent the patient from continuing at his occupation.[1]

As to the method of obliterating the veins, the simple ligature has the objection that parts of the old vein remain patulous to take part in the anastomotic venous circulation that is formed around the ligated point, and this leads to an almost immediate return of the feeling of fulness and weight complained of before. Trendelenburg reintroduced Paulus Ægineta's method of a double ligature with section of the vein between them, and published a number of cases with excellent results. The method is open to some of the objections of the simple ligature. Probably the plan most adopted now is the exsection of portions of the varies. Where varicose tumors exist, as at the ankle or knee, the veins leading to them are ligated and the tumors removed. In the long or short saphenous two or three portions of the veins three to four inches long each are removed. This replaces the more radical procedure of a few years ago, when the whole of the vein was removed. The incision for the saphena magna, reaching all the way from the saphenous opening to the outer ankle, made it a very formidable operation, and left a very large open wound for the absorption of micro organisms or their products. The exsection of portions of the affected veins at intervals seems to accomplish the purpose of obliterating the veins quite as satisfactorily and without so much risk of infection.

Varicocele, as regards radical operation, has been looked at as producing symptoms in two different ways. The first is the weight and fulness produced by the distended veins; the other, the constant dragging upon the sensitive nerves of the cord and testicle from the insufficient support given by the relaxed and stretched scrotum. These two points of view have given rise to two different ways of

[1] New York Medical Journal, December, 1889.

treating varicocele for radical cure. The first was by obliteration of the veins by ligature simply, the second consisted of exsection between two ligatures of enough of the varicose veins so as to shorten them and keep them from dragging on the testicle and cord. The second purpose has also been attempted and with reported success in a number of cases by shortening the scrotum—bilateral resection of the scrotum, as Wickham, its inventor, calls it. Exsection of enough of the varicose veins to make the testicle hang at the same level as the other, the ends of the cut veins being brought together by tying the ligatures from each end that have been intentionally left long for that purpose, accomplishes both purposes very satisfactorily. I have seen two cases operated on by Professor Agnew, respectively six and eight years ago, and in neither was there recurrence. In but one of them is there now any of the symptoms complained of before, and those in very slight degree in a somewhat hypochondriac patient.

The danger of atrophy of the testicle from interference with the blood-supply is almost *nil.* Where it is noted afterwards it has usually taken place before the operation from the pressure of the large veins, and this is not very uncommon. The spermatic artery may be included in the ligature, but the artery of the vas will supply blood to the testis. Bennett has demonstrated a section of the spermatic artery in most of the exsections made by him, and they were not followed by atrophy of the testicle. In such cases reported before asepsis it was the inflammation, not the ligature, that cut off the blood-supply of the organ.

As for the other varieties of varix, the radical treatment of hemorrhoids is by excision of the diseased veins. The ideal operation is Whitehead's, in which the whole mass of mucous membrane in which the varicose veins occur, together with the chronically inflamed and infiltrated tissues around them, is removed by dissection and the mucous membrane from above brought down to supply its place. It is, however, a serious and rather bloody operation. and is said to leave the patient liable to stricture of the rectum from cicatricial contraction. Whitehead himself, who has reported a great many cases in addition to 300 originally reported, when introducing the operation to the public, has not found this complication to ensue. Professor C. B. Penrose, who has reported a number of cases, has had no serious after complications, and has found after the operation a freedom from recurrence that no other operation gives. The profession in general has adopted the simpler method of obliteration of the veins by excision of portions of them. There are two methods in common use for the accomplishment of this purpose, each of which has its ardent advocates. Some surgeons prefer the clamp and cautery, others the

simple ligature. Those who use the ligature claim that there is a certain amount of danger from hemorrhage after the use of the clamp and cautery, and that while it is not by any means of frequent occurrence, it adds a distinct risk to what should be a simple, never a serious, operation. Advocates of the clamp and cautery argue that as the tissues below the ligature must come away by sloughing eventually, their removal by cauterization is a bit of conservative surgery helping nature in the process of cure. The danger from hemorrhage is minimized by leaving a good margin (over a quarter of an inch) of tissue unburned below the clamp.

The question as to which of the operations is the best remains an open one, not to be decided off-hand, where so many careful, capable surgeons are ranged on each side. Allingham's operation with the ligature is, however, on the whole the best, if the number of conservative surgeons who have clung to its use or returned to it after trying other methods, can be used as a criterion.

An important part of any operative procedure that is employed is thorough dilatation of the sphincter. It diminishes the pain after operation by preventing spasm of the sphincter, lessens the risk of concealed hemorrhage into the bowel, and by putting the part completely at rest, hastens healing and cure. It is best done, as is usually directed, by inserting the thumbs into the rectum back to back and gradually separating them till the sphincter is felt to give. It must be done slowly and carefully, or there may be some troublesome incontinence afterwards.

Capillary hemorrhoids are best treated by applications of nitric acid or the actual cautery. Arterial hemorrhoids will require the careful ligation of the main arteries leading to them, which, under these circumstances, will often be found enormously enlarged, an artery as large as the radial being sometimes found. A good deal of money has been spent in this country in advertising, and as a consequence a good deal of attention called to a method of curing internal piles without an operation. The method has been mostly in the hands of irregular surgeons,—travelling advertising quacks. It has, however, undoubtedly achieved brilliant results at times. It consisted of the injection into the prolapsed varicose tumors of a solution of carbolic acid or some other drug calculated to cause coagulation in the affected veins, and consequently obliteration and absorption. In the hands of regular surgeons, however, it has not been found to be the simple, painless, harmless procedure that it was claimed to be. It nearly always causes a great deal of pain some time after the injection. It often gives rise to sloughing and ulceration that are at times exceedingly difficult to manage. Like corresponding methods

for the obliterations of varicose veins in the leg, it would seem to invite recurrence of the varicosities *in situ.*

The Treatment of Complications.

Hemorrhage.—The treatment of hemorrhage from a ruptured varicose vein is that of the treatment of venous bleeding under any other circumstances. What makes it dangerous, as a rule, is the fact that the thickened inelastic vein walls fail to contract, and imprison the clot that nature would form at the orifice of the vein. Position and pressure, often the first alone, will cause the bleeding to cease. Sometimes in pregnant women, however, it has proved difficult to stop the hemorrhage, and it is in them that loss of blood is particularly dangerous. Other means, even to the employment of the cautery or ligature, may become necessary.

Professor Hirst suggests that a pregnant woman, whose varices are large and show signs of atrophy of the skin over them so that slight traumatism may lead to hemorrhage, should carry with her for such an emergency two handkerchiefs, the one to be employed as a bandage around the limb, the other to be applied beneath the first in a knot so as to exert pressure upon the bleeding point. One of the dangers of confiding to any but a physician the means to stop bleeding in a case like this is, that it is almost impossible to remove from the ordinary non-medical mind the idea that for all bleeding a proximal tight bandage must be applied. This in the case of hemorrhage from varicosities would only add to it.

Phlebitis.—The treatment of phlebitis occurring with varicose veins is that of the same affection under other circumstances. Absolute rest must be insisted on to avoid embolism, and the limb must be elevated and wrapped in cotton to take the influence of gravity off the veins, and keep up the temperature of the part. Meantime there must be thorough general supporting treatment. Should suppuration develop, the abscesses will require incision and drainage as under other circumstances.

Varicose Ulcer.—Varicose ulcer in its simpler forms is to be treated as an ordinary ulcer with the addition of strapping to support the parts, and set them at rest to favoring the healing process. In its more aggravated forms its trophoneurotic character must be considered, and rest must form the principal part of the treatment. A week or two in bed, with the limb elevated, will do more for varicose ulcers than any surgical procedures or vaunted dressings. The more nearly this condition of perfect rest can be secured for the patient by well fitting supports and general hygienic regulations, the

easier it will be to make the ulcer heal with any dressing. When healed, they are liable to relapse after any slight traumatism. Bad leg ulcers, extremely indurated, and absolutely refusing to heal, constitute a very good indication for the radical treatment of the varicose veins by obliteration. They usually heal rapidly and without treatment after this.

Chronic eczema due to varicose veins requires the usual remedies for that disease, but will often fail to yield kindly to treatment. Rest, combined with the simple or in inveterate cases, stimulating ointments are the indications. Professor Duhring recommends a prescription containing a half drachm of calomel, four drachms of oxide of zinc, and four drachms of vaseline, applied beneath a firm supporting bandage. When cured, it is very liable to recur, and will require careful attention to the general health and condition and to cleanliness of the parts, to guard against a relapse.

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A COMPACT PORTABLE STERILIZER FOR BOTH INSTRUMENTS AND DRESSINGS.

By Charles Lester Leonard, A.M., M.D.,

Assistant Instructor in Clinical Surgery in the University of Pennsylvania; Surgeon to the Southern Dispensary.

The carrying out of strict asepsis in operations in private houses is often very difficult, and is, at least, laborious; anything that simplifies the labor must therefore be of service.

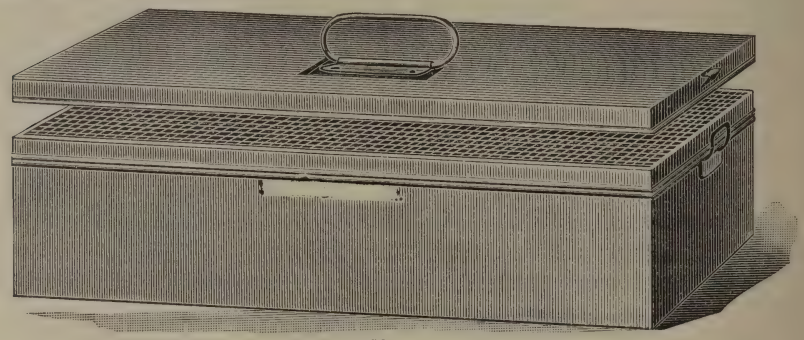

Fig. 1.

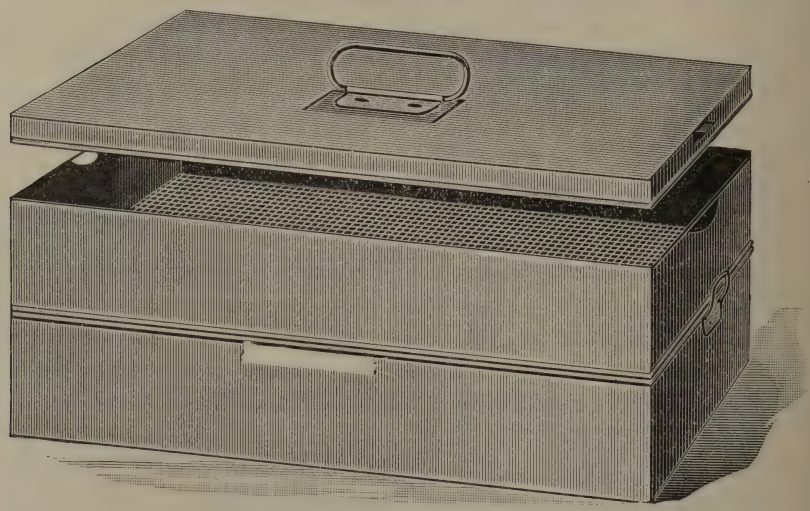

Fig. 2.

The sterilizer, illustrated by the accompanying figures, is one which the author has found useful, and believes will recommend itself both on account of its simplicity and compactness, and because, with it, both instruments and dressings can be sterilized at the same time.

It consists of two trays and a lid; one tray, when inverted, fits within the other, while the lid fits over the outer one and is fastened securely by the handles, which serve as catches. In this form it is a compact aseptic case for transporting and keeping instruments. It is sixteen inches long, nine inches wide, and four and a half inches deep. (Fig. 1.)

When in use as a sterilizer it consists of two compartments and is seven inches in depth. (Fig. 2.) This increase in capacity is secured by turning over the inner tray, its wire-gauze bottom then divides the sterilizer into two compartments, in the lower the instruments are boiled in the usual manner, while the upper or larger compartment serves for the steam sterilization of dressings, towels, etc.

The sterilizer is made of copper, nickel-plated, and may be obtained in three sizes, of which the one mentioned is the largest.

326 South Sixteenth Street.

ALUMNI NOTES.

Houston Hall Opened.

Houston Hall, the new students' club-house, was formally opened on the evening of January 2, 1896. Shortly after eight o'clock, Mr. J. Madison Stifler, president of the Houston Club, called the meeting to order, and asked the students to join in singing the Pennsylvania song, "Ben Franklin." Provost Harrison was the first speaker. He said he did not propose to make a formal speech, but he would tell something about the history of the building and of the purposes of those who were instrumental in its erection. He said in part:

"Three years ago I chanced to be in West Philadelphia on a Sunday afternoon, and saw a light in College Hall. I wondered what the light could mean, so I went up-stairs to the chapel and found a group of young men holding a meeting. I played the eavesdropper, and found that they were deploring the lack of social and religious privileges at the University, and were speaking of their duty towards obtaining them. That meeting resulted in larger ones in the chapel, and finally a few of us in an upper room on Woodland Avenue, formulated the plans for the Students' Hall.

"The students started the movement and made the first contribution. As the plans developed it was found that more money was needed, and the purpose of the

hall was changed from being of a religious character to one of physical recreation and social enjoyment. One night, when I was dubious about the success of the project, I sent a telegram to Mr. H. H. Houston, requesting a meeting, and, without waiting for a reply, I went to his house. We talked of the needs of the University students, and that great friend of the institution, who is no longer with us, gave $50,000 for the proposed building."

Mr. Harrison said that throughout the undertaking had been a University one, the plans being selected by competition in the School of Architecture, while one of the instructors of the University acted as supervising architect in completing and carrying out the plans. He said the first contribution had not been sufficient, and Mr. Houston and his family twice made other donations, until it was now entirely free from indebtedness.

In speaking of the influences of the building, Provost Harrison said he hoped it would be a home for every student, attractive and beneficial. It was only a beginning, he said, of what was intended to be done for the students, mentioning the dormitory system, which he hoped soon to see completed, a University dining-hall large enough to accommodate all students, a chapel, for while the University, he said, is not sectarian, it is a Christian institution.

In closing, the Provost said,—

"I now pronounce the Students' Hall as dedicated to its uses and in the hands of the students of the University of Pennsylvania."

President Stifler followed the Provost, and in accepting the house he thanked the donors and the officials of the University, and he said he hoped that the objects for which the building was erected would not fail. Vice-Provost Fullerton also spoke of the good which it was expected the club would accomplish. Frank Miles Day, the architect, also made a few remarks, and the Glee Club sang several pieces.

The Interior Appointments of the Building.

The features of the ground floor are the big main hall, with the billiard-and smoking-rooms opening off one end and the reading- and correspondence-rooms at the other. Entering either by the main or the rear entrance, the visitor is confronted by an immense bear's head, attached to the skin, which serves as a rug in front of each door. In this hall, which is about 40 x 60 feet, are an abundance of chairs and two big settees, with seats back to back, affording fine facilities for restful ease and conversation. At each end is a big fire-place, with handsomely carved oaken mantels, surmounted by stags' heads, and on both sides of the rear entrance are the stairways leading to the second floor, and the opportunity for fine wood-work display is utilized to the full. All the wood-work here, and, in fact, on both the main floors, is in quartered oak.

On the front wall is an oil portrait of Henry Howard Houston, painted by Cecilia Beaux, and presented by members of Iota Chapter. Over the rear entrance is a tablet inscribed,—

For the Daily Use of the Students of the University of Pennsylvania,
In Loving Memory of
HENRY HOWARD HOUSTON.
B. S. MDCCCLXXVIII.
This Hall is Dedicated by His Parents,
H. H. and S. S. Houston.
Anno Domini MDCCCXCV.

From the western end of the hall is the stairway to the basement, and on a broad landing a bar for non-alcoholic beverages, while in a corresponding position under the eastern main stairway is a most completely-furnished members' lavatory. On the east side of the main entrance is the secretary's office, and on the west a small ladies' parlor, with lavatory.

The billiard-room occupies the central portion of the west wing, and is about forty-two feet square, with two billiard- and four pool-tables. On the side next the main hall is a fine large fireplace, with carved mantelpiece, and along the walls are raised settees. At each end, and two steps higher than the billiard-room floor, are the smoking-rooms, partly cut off by oaken screens, and well supplied with tables and chairs. The wood-work in these apartments is in a rich olive stain.

At the opposite end of this floor apartments of the same size are provided as reading- and correspondence-rooms. The finish is in similar style. Large tables for periodicals occupy the main space; but there is room around the big fireplace for a number of chairs. An abundance of electric light is provided here, as well as everywhere else in the building.

On the second floor the apartment of most interest is the trophy-room, which occupies the central position overlooking Spruce Street. It is lighted by large windows, and has in it several large cases for the display of the prizes won in collegiate contests. At either end, separated from it by wide sliding doors, are class-rooms.

The western wing on this floor is occupied by a lecture hall, with about 360 seats, a pretty little stage and dressing-rooms. Immediately west of the central hall is a supper-room, with a well-equipped serving-room attached, while beyond are the secretary's parlor and bed-room, a visitor's bed-room, the Athletic Association's room, and two rooms for religious meetings. The hall is similar in character to that on the ground floor, but less pretentious.

The third floor is much plainer in style than the first and second, but charmingly neat and comfortable. It is cut up into smaller apartments for the use of the various societies and the editorial staffs of the University publications. The Camera Club has a prettily

furnished meeting-room and a dark room. Separate stalls are provided for five workers at the same time.

In one corner under the peaked roof are the unique quarters of the glee and banjo clubs. The ceiling is timbered, and along one side a wooden settee is built into the wall. Ancient-looking German chairs complete the seating facilities. There is a roomy closet for instruments.

Another corner is occupied by a roomy kitchen, connected with the basement by a lift for supplies and with the serving-room by dumb-waiters.

Though not so gorgeous in its appointments, the basement will not be the least enjoyed portion of the building. The western wing contains four bowling-alleys, a shuffle-board, and a bowlers' lavatory. The central portion is taken up by the hat- and coat-room, the locker-room, and the main lavatory. The latter has two needle-baths, three shower-baths, and two tubs. In the northeastern corner is the physical-exercise room, well furnished with apparatus. The rest of the east wing is occupied by the swimming pool. The pool is fifty-two feet in length and varies from four and a half to ten feet in depth. The water is heated. The pool and floor are of white marble tiling.

A Joseph Leidy Memorial Fellowship.

A number of the younger alumni of the Medical Department of the University, whose privilege it was to be taught anatomy by the late Professor Joseph Leidy, have formed a committee to raise the sum of $30,000 to endow the Joseph Leidy Memorial Fellowship in the Wistar Institute of Anatomy. A number of large contributions have already been received, and the prospects seem very bright for securing the entire amount in a short time. A general circular will soon be issued by the committee, and it is earnestly hoped that the movement will meet with that hearty response from the medical public which it unquestionably deserves. The advisory committee consists of Mr. C. C. Harrison, Dr. S. Weir Mitchell, Dr. J. M. Da Costa, Dr. George A. Piersol, and General Isaac Wistar. The committee of the younger alumni consists of Dr. William C. Posey, chairman; Dr. J. Howe Adams, secretary; Dr. C. H. Frazier, Dr. Joseph Leidy, Jr., and Dr. Joseph P. Tunis.

Annual Meeting of the New York Alumni Association.

The annual meeting of the New York Alumni Association of the University of Pennsylvania was held on Friday evening, January 17, in the Hotel Waldorf. After the dinner, a number of speeches

were made, the first being by Mr. Charles C. Harrison. He reviewed the progress of the institution, and of its present prosperity said that it had 300 more students than last year, while its Freshman Class of 235 was the largest that ever studied for a degree. He spoke of Houston Hall and club as features not equalled by any other institution, and told what the library had gained during the year. Cash contributions from October, 1894, to October, 1895, had been $431,000, a comparatively small sum. He said the University could profitably use $5,000,000, but would work with whatever it had, and would make a good showing. It had no jealousy of other institutions, and was glad whenever they received a gift, for he felt that they were all working together to push forward the great republic of letters. Dr. Pepper, who spoke next, addressed himself especially to the explanation of the scope of the General Alumni Society, of which he is president. It was designed, he said, to bring every securable member of the 11,000 or 12,000 alumni into this for the purpose of mutual interest in the alma mater, and for the keeping alive of old associations. Of the fitness for this company he said that the man who had no sympathy with the high things which make for happiness and intellectuality was not a suitable member. "He is not of us," he continued, "and he looks forward to a contracting old age, and a poverty of idea." Of the duty of supporting the University, he said that the man who did not recognize that of the good things that came to him he owed something to religion, something to charity, and something to the cause of sound education, was selfish and narrow. He said that the University of Pennsylvania had been the first institution in America to take the name and character of a university, and that it was destined to be numerically the most important academic institution in the New World. He directed attention to the fact that at the end of the eighteenth century it was the most important educational institution in America, and he added that it was approaching that place again, and was now the third in the United States in numbers. Mr. L. C. Madeira and Mr. Carl Williams spoke of athletics. Addresses were also made by Dr. John Marshall, and others.

The Chair of Pathology in the Jefferson Medical College.

Dr. George Dock, of the Class of '84, professor of the Practice of Medicine in the University of Michigan, has been elected to the chair of Pathology in the Jefferson Medical College.

President of the Boston Alumni Society of the University.

At the recent reunion of the Boston Alumni Society of the University, Dr. George B. Twitchell, of the Class of '43, was elected president.

Necrology.

Dr. William M. L. Richards died on January 15, 1896. Dr. Richards was born in Philadelphia, August 7, 1822. His father, Dr. Elias Richards, was a graduate of the Medical Department of the University, and the son graduated from the same institution in 1843. For a number of years he practised in Lewes and Georgetown, Delaware, but since 1857 he resided in Philadelphia. He was a member of the Philadelphia County Medical Society and of the American Medical Association.

Dr. John Pennock Gruwell died in Oskaloosa, Iowa, on January 21, 1896, in the 86th year of his age. Dr. Gruwell was born in Stark County, Ohio, May 19, 1810. He studied medicine in the University of Pennsylvania, being graduated in 1848, and practised in Ohio until 1866, when he removed to Oskaloosa.

Subphrenic Pyopneumothorax.

Laache (*Norsk Mag. f. Lägeb.*, p. 1021, 1894), in a case of this kind with the ordinary symptoms, practised resection of the eighth rib and found the cavity of the pleura empty. At the end of two days the abscess could be opened, when a large quantity of pus escaped. It was mixed with air, had a fecal odor, and contained numerous black points which gave the reaction of hemin. In another case there was perforation of the diaphragm with empyema. Operation for the latter was followed by the resection of several ribs, and led to considerable improvement in the patient's condition. Complete recovery, however, did not take place, as a fistula persisted, opening at intervals of two or three weeks and giving exit to a varying quantity of pus. The author is of the opinion that a narrow communication must have existed between the abdominal cavity, where the abscess first formed, and the pleural cavity.—*Universal Medical Journal.*

EDITORIAL.

IN RE THAT INTERNATIONAL SCIENTIFIC LANGUAGE.

Interest in an international scientific language has been awakened by the appearance of a number of articles on this subject in recent medical literature. A late writer, John B. Hamilton, M.D., (*Journal of the American Medical Association*, December, 1895), says, "The truth is that the progress of science has demonstrated the great advantage—nay, the necessity—for an easier means of communication between the scientific men of the world than is now found." It is certainly the opinion of those who have studied this subject that an international scientific language is greatly to be desired.

The first difficulty that arises is, what language shall be adopted? Here we at once meet with widely differing opinions. Some authors urge the Latin as the only language that fulfils all the necessary conditions, others favor Greek. Naturally many English-speaking writers advocate English; Dr. Hamilton presents some claims for the adoption of the French. Perhaps there are other aspirants, but they need not be considered here.

Those who argue, more selfishly than wisely, that because the English language has been carried to all the continents it will soon become the medium for international communication, forget that it is the English alone who speak this language. English is not taught in the schools of all countries. The people of every nation will continue to speak their own language in preference to adopting that of another, which would mean national suicide. The slightest suspicion that one nation was attempting to force its own tongue upon another would arouse the deepest indignation and the most obstinate opposition. The same remarks apply to French, excepting that the latter is much more universally taught than is English. It seems to us that Dr. Hamilton's observation that French is now the language of diplomacy and polite society throughout the world will not hold as an argument for adopting it as an international language. This custom was arbitrarily established during the reign of Louis XIV, surnamed "Le Grand," who entertained dreams of a French universal monarchy. At this time the Bourbons were absolute at home and paramount abroad. The art and literature of France excelled, and the army of Louis XIV was the most perfect military organization in Europe,

adding much to the wealth of the country and extending the influence of French customs. There is little wonder, therefore, that the French language should have been selected as the medium for international communication. It by no means meets the present needs, however.

The majority of writers express a preference for one of the so-called "dead" languages, because there would be no further changes to confuse the student. It seems to us, also, that for the reasons mentioned, all modern languages may be put aside as *hors de combat.* We are brought therefore to a choice between Latin and Greek. The question of whether it shall be one or the other is really foreign to the issue. The trend of the recent articles on this subject is to point out the advantages of one and the disadvantages of the other, with the implied supposition that the language in question would be chosen or decreed, either by the readers, or by some central authority. Nothing could be more erroneous than such a supposition. But, suppose we were to choose, let us compare the two for a moment. It is estimated that some 20 per cent. of scientific, literary, and technical language is derived from the Greek, and the beauty and sublimity of this tongue cannot be questioned, but it cannot be considered a "dead" language, as Dr. Hamilton has shown. On the other hand, it is said that Latin forms 60 per cent. of the English language, 90 per cent. of French, Italian, Spanish, Portugese, Roumanian, and Romansch, some 30 per cent. of German, Dutch, and Swedish, 10 per cent. of Russian, Polish, Bohemian, Greek, and Hungarian, and some 75 per cent. of scientific and technical language. Take away Latin, and the nations of the western world would be deprived of all language.

Almost every educated person has studied some Latin, usually to a greater extent than Greek; there is much more Latin than Greek type in every civilized country in the world, and most persons could write the former with much greater facility than the latter. The simplicity of the Latin letters is also a recommendation.

As the writer already quoted states: "Latin was the scientific language of the world for nearly 1700 years, and less than two centuries have elapsed since it ceased to be the common language of science. It was abandoned simply because it was inelastic." This would be a valid reason, if true, but the Latin could be expanded as are the modern languages. The terms that are being introduced could be incorporated as well with Latin as with any other language. On this point the *Encyclopædia Britannica* says, "The style of the eminent lawyers of this period, foremost of whom is Gaius, deserves special notice as showing well one of the characteristic excellences of the Latin language. It is for the most part dry and unadorned, and in syntax departs occasionally from classical usages, but it is clear,

terse, and exact. Technical terms may cause difficulty to the ordinary reader, but their meaning is always precisely defined; new compounds are employed whenever the subject demands them, but the capacities of the language rise to the demands made upon it; and the conceptions of jurisprudence have never been more adaquately expressed than by the great Roman jurists." Although these remarks refer to law especially they would be equally true if applied to medicine and the other sciences. If Latin is the foundation of so many languages, it would naturally become the international language.

This is, however, not germane to the question. Neither will be adopted by the sanction, defence, or decision of anybody. While we advocate Latin, we do not oppose Greek. Both are *de iure* and *de facto* international languages. More people are constantly studying Latin and Greek than any other languages. While one or two modern languages may be taught in the school, say two hours a week, five to eight periods are devoted to Latin and three to four to Greek. There are few professional men from Sweden to New Zealand, from Kamtchatka to Tierra del Fuego who have not studied some Latin.

As it seems to us, the international language must be developed in our schools. If nearly every educational institution of the world teaches Latin, why not teach it properly, and apply the knowledge to some practical use. The utter failure of the average person to be able to utilize the knowledge gained by the large amount of time spent upon Latin and Greek in the school is lamentable. Instead of being practical and useful additions to the college curriculum, these languages have been made insurmountable philologic obstacles, a craze which had its origin in Germany. It is a fact beyond dispute that language should be learned by the ear as well as by the eye. Our institutions should *insist* on colloquial teaching. Teachers speaking Latin fluently should be employed to teach Latin colloquially, and native Greeks should be obtained to teach Greek colloquially. The clamor of classicism is but a subterfuge. A teacher speaking Latin or Greek knows more about the classics, can interpret them better, has infinitely more familiarity with the idioms and delicacies of the language than one whose sole preparation has been obtained from books.

If those interested in securing an international language in reality will use their influence in establishing the colloquial method of teaching Latin and Greek in the schools of the world instead of the present system, which has proved itself a failure, either language, both written and spoken, may be used universally by the next generation. The realization of an international language, like other advances, will come by education, not by force.

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.,

ASSISTED BY

M. HOWARD FUSSELL, M.D. AND A. O. J. KELLY, M.D.

Recurrent Cancer of the Stomach.

Davey (*Lancet*, July 13, 1895) reported in the *Lancet* of April 12, 1890, a case of carcinoma of the pylorus for which pylorectomy was performed. The patient recovered perfectly, could eat anything, and had no dyspeptic symptoms.

In June, 1893, the patient was seized with severe hematemesis, from the effects of this he was well until six months later, when he began to complain of indigestion. At this time a small tumor was discovered just beneath the old cicatrix. He died, December, 1894, almost four years after the operation. The post mortem showed a cancerous ulcer invading almost the entire mucous membrane of the stomach.

A Case of Acute Leukemia.

Seelig (*Deutsches Archiv für klinische Medicin*, Vol. LIV, Part 6) reports the following case: Walter R. was well until 9 years of age; he then had scarlet fever followed by nephritis. The nephritis was so severe that he was more or less constantly under treatment at the hospital until 11 years of age. Frequent physical examinations of the child were made during the two years.

On October 14, 1894, he was taken to the hospital with the history of an illness lasting five weeks; he felt unwell, had severe headache and slight gastric disturbance. Examination of the organs showed no abnormality except an enlarged spleen, which reached three fingers' breadth below the ribs. The urine contained, as always, albumin. *Examination of the blood was entirely negative.*

Sixteen days afterwards, October 30, 1894, the child was seized with vomiting and severe headache. Examination developed the following conditions:

Extensive anemia, slight edema of the face, the gums soft and bleeding upon being handled. The lymph-glands in axilla, inguinal region, and at elbows, much swollen. The heart and lungs normal. Liver and spleen both increased in size. *Examination of the blood showed an immense increase in the number of white cells, and gave an exquisite picture of leukemia.* The boy died November 2.

The section showed enlargement of superficial lymph-glands. Both liver and spleen much enlarged. The thymus gland greatly increased in size. This is the thirty-first case of acute leukemia reported; its course was certainly between the 14th and 30th of October, and probably the change in the blood first took place on the latter date. Its origin could not be detected.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

G. G. DAVIS, M.D., M.R.C.S., AND ELLWOOD R. KIRBY, M.D.

Circumstances under which Chloroform is Preferable to Ether as an Anesthetic.

Gay (*Boston Medical and Surgical Journal*, October 31, 1895) says the accumulated testimony of the past fifty years tends to prove conclusively that ether kills slowly, chloroform quickly; that ether kills by asphyxia, and chloroform by cardiac paralysis; that ether gives plenty of warning, chloroform often none whatever; that ether is safer in healthy and strong people than in the weak and prostrated, but chloroform is nearly as fatal in the vigorous as in the debilitated.

Ether does not demand any especial skill in its administration, while chloroform does. Proper treatment easily and effectually overcomes the unfavorable symptoms from ether, while in chloroform it often does no good whatever. In spite of the above facts, there are certain conditions in which chloroform is the preferable anesthetic. In a general way it may be said that all operations liable to be attended with spasm of the glottis, edema of the larynx or lungs, profuse secretion of fluids in the air-passages, and tonic contraction of the muscles of respiration can be done under the influence of chloroform with more safety and satisfaction than under ether.

All cases requiring tracheotomy and esophagotomy, laryngitis, acute, chronic, traumatic, specific, or tubercular edema of the larynx or glottis, malignant disease of the throat and neck, deep cervical cellulitis, bronchitis in the aged, and asthma. Spasm of the glottis with impeded respiration is peculiarly liable to occur in patients with foreign bodies in the air-passage or esophagus.

Operations for their removal generally require time and careful manipulation, and it is therefore essential to use an anesthetic that will cause the least disturbance to the patient. Chloroform has been used by the writer in three cases of esophagotomy with much satisfaction.

Kocher has recently reported 1000 thyroidectomies for goitre. One death resulted from bronchitis following the administration of ether. There were no deaths from chloroform. He always begins anesthesia with chloroform and continues with ether.

Old people suffering from chronic bronchitis or edema of the air-passages are not good subjects for ether, as the irritation tends to increase the secretion, which occasionally becomes so profuse as to drown the patients in their own fluids.

This accident is peculiarly liable to occur in heavy drinkers, in those suffering from chronic urinary disease, and in those profoundly prostrated by any serious affection.

The statement has recently been made by some German surgeons that while the immediate danger from ether is much less than from chloroform, yet that the remote danger is greater by reason of the emphysema, bronchitis, broncho-pneumonia resulting from the anesthetic.

These complications have been seldom seen in this country to create suspicion or distrust.

Infection of the Urinary Tract.

Bastianelli (*Boll. dell' Ac. Med. di Roma*, An. xxi, Fasc. 2–6) has made a clinical and experimental study of this subject. He first gives a short clinical report of thirty-seven cases of cystitis observed by him, adding in each case the result of the bacteriological examination of the urine collected by catheter with all antiseptic precautions. Micro-organisms were present in every case. In twenty-five cases out of the thirty-seven only one organism could be cultivated. The organisms most frequently met with (twenty-one times) were microbes belonging to the coli bacillus group, including Eberth's.

In nineteen cases there had been no previous surgical interference whatever before the onset of the cystitis. The author then discusses the morphology and biology of the various organisms found by him in the urine, and details the results of experimental injection of cultures into the bladder of rabbits. Unless there was previous retention of urine (either partial or complete) or some morbid condition of the mucosa, the injection of micro-organisms never caused cystitis. If they were injected into veins they were constantly found again in the urine, but did not set up cystitis unless there were predisposing local conditions. Unless pus and micro-organisms are to be found in the urine, cystitis is not present.

Apply these results to the pathogenesis of vesical infection in man, the author concludes that micro-organisms, by whatever pathway they may reach the bladder, can only induce cystitis when there is some pre-existing morbid condition of the mucosa, or when there is some impediment to the free flow of urine. Under such circumstances the germs multiply, and insinuating themselves between the epithelial cells, cause diapedesis, suppuration, and local necrosis, finally passing through the lymphatics into the circulation and system generally. Neither micro-organisms nor the aforesaid predisposing conditions can set up cystitis if acting alone, but in combination they are efficient causes of the same. The various possible pathways of infection receive full consideration at the author's hands.

Juxta-Articular Osseous Tuberculosis.

Menard (*Revue d'Orthop.*, No. 5, 1895) publishes a group of cases of tuberculosis affecting the epiphysis of a long bone without involving the adjacent articulation, but extending directly to the surface of the limb. In such cases, the author points out, the tuberculous deposits should be exposed and removed as soon as the diagnosis has been made, with the object of preventing the extension of the disease to the nearest articular cavity. This danger is especially active in tuberculosis of the lower end of the femur and the head of the tibia.

Although articular tuberculosis usually originates in a tuberculous deposit in one of the osseous extremities constituting the joint, such morbid deposits in bone do not habitually give rise to tuberculous disease of the adjacent articular cavity. In this sequence the anatomical arrangement of the articular surfaces plays an important part. As the synovial membrane of the hip-joint surrounds the neck of the femur, tuberculosis of this portion of the bone extends rapidly to the articular cavity. In tuberculosis of the lower end of the radius or ulna the wrist is seldom involved, as the disease extends to the superficial posterior surface of the long bone more readily than it does to the joint. Radio-carpal tuberculosis, it is held, is more frequently due to primary disease of the carpal bones. In the region of the elbow the olecranon is the osseous extremity in which the conditions are most favorable to the extra-articular evolution of a tuberculous deposit.

Tumors of the Thyroid Gland.

Cooke (*British Medical Journal*, June 8, 1895) suggests the seven following rules in removing tumors of the thyroid gland:

(1) Give chloroform, as ether engorges the already enlarged veins.

(2) Observe scrupulous cleanliness, have plenty of assistance, and many forceps and ligatures handy.

(3) Take plenty of time.

(4) After exposure of the cyst use only directors and fingers for dissecting, and keep close to the cyst wall.

(5) Keep the fingers and the wound moist with an antiseptic solution sufficiently weak not to irritate the sensitive and important nerves sometimes exposed, and, as far as possible, keep the parts in their normal position.

(6) Partially evacuate a large cyst before removal to assist the later stages of the operation.

(7) Insert a small drainage-tube before sewing up, for fear a collection of serum should press upon and occlude the trachea.

He considers the following as indications for removal:

(1) If the tumor be steadily increasing in size.

(2) If there be troublesome pressure upon the trachea, esophagus, or nerves.

(3) If the tumor be so placed as to render impossible a possibly necessary tracheotomy.

(4) If the patient strongly urge its removal because of its unsightly appearance, or its interference with the movements of the head.

THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D., AND ARTHUR A. STEVENS, M.D.

Rheumatism treated by Hot-Sand Baths.

At the session held on the 4th of March, 1895, of the Society of Internal Medicine of Berlin, Grawitz (quoted in *Archivio di Farmacologia e Terapeutica*, Vol. III, fasc. 7, July, 1895) announced that he had obtained very satisfactory results in twenty cases of rheumatism from baths of hot sand. It is in chronic rheumatism, and especially chronic arthritis deformans, that this treatment is most indicated. Not only did complete baths do good, but when given locally, as to the feet, the hands, even to one member, they proved beneficial. The first effect of the hot-sand bath is to lessen the pains. Afterwards there is noted a diminution of the swelling and of articular effusions. The baths exert a very special influence in the cure of edema of renal or cardiac origin. These baths carry with them no special inconvenience or danger, and do not expose the patient, as do hot-water baths, to the risk of collapse.

To be agreeable they ought to be taken at a temperature of about 50° C. (about 122° F.), which, of course, could not be borne in water; the duration varies from thirty to sixty minutes; they cause at first an elevation of temperature, but not more than one degree; they rapidly bring on an extremely abundant perspiration, the

amount of sweat reaching, in some cases, a weight of a kilogramme to a kilogramme and a half.

Senator, of Berlin, said, during the discussion of the subject, that he also had observed the highly beneficial influence of baths of hot sand in chronic rheumatism, and had seen them cause the rapid disappearance of edema of renal origin in bad cases of Bright's disease. (Translated by Dr. James J. Walsh,)

The Treatment of Asthma by a Strict Milk Diet.

Huchard (*Semaine Médicale*, No. 17, April 3, 1895) reports a number of successes in the treatment of cases wrongly called neuropathic or reflex asthma by the use of a strict milk diet. He has found the same regimen of great benefit in cardiac cases with nocturnal paroxysms of dyspnea. He considers the dyspnea in these cases to be due to ptomaines that find their way into the sluggish circulation and poorly oxygenated blood from the alimentary canal. He has found it only necessary to interrupt the strict milk regimen and resume a mixed diet to cause the paroxysms to recur.

He has found that the milk (about three litres per twenty-four hours) must not be all given during the day, but about a litre of it in the evening and one-half litre during the night. There is a question whether the same results may not be obtained by the use of intestinal antiseptics in such patients as are unable to bear the strict milk diet.

Huchard seems to incline to the opinion that all nervous asthmas are of toxic origin and due to ptomaines absorbed from the intestinal tract. (Translated by Dr. James J. Walsh.)

Feeding by the Rectum.

Singer (*Cent. f. de ges. Therapie*, March, 1895, and *British Medical Journal*) recalls that the clinical value of rectal nutrition was established by Voit, Bauer, Von Eichhorst, and others. Egg albumen, with or without preliminary peptonization, is absorbed and assimilated by the mucous membrane of the large intestine. For direct absorption milk is well suited. According to some, egg albumen is best when first mixed with salt (one gramme to the egg), though Ewald attaches no value to it, thinking, as he does, that the peptonization is the most important. Better still is Huber's combination of the two methods: six eggs are mixed with six grammes of salt, and 200 cubic centimetres of a 0.15-per-cent. solution of HCl, containing five grammes of pepsin, and the mixture is kept for ten hours in the warm chamber. Of this mixture, nutrient enemata may be given twice daily. Rectal feeding is still insufficiently employed in practice, partly because it is sometimes disagreeable, partly also, perhaps, because this method of nutrition has not quite fulfilled the somewhat exaggerated expectations at first entertained of its utility. Singer thinks that after hemorrhage from a gastric ulcer rectal feeding should be resorted to for some days. It diminishes the likelihood of a recurrence of the hemorrhage by doing away with the irritation caused by the presence of food, and by giving the stomach physiological rest, with freedom from the peristalsis and hyperemia accompanying digestion; it is at the same time a treatment for the troublesome vomiting of gastric ulcer, with or without hemorrhage. The nutrient enema should not consist of more than a quarter of a litre. Singer has practically kept to the mixture recommended by Boas, and uses 125 grammes milk, 125 grammes wine, the yolk of two eggs, mixed with a little salt and a teaspoonful of Witte's peptone; he some-

times adds a little grape-sugar. The mixture is well beaten up, and an ordinary enema-syringe furnished with a soft tube is used to inject it. The nutrient enema may be given three or four times daily at intervals of four to five hours. The rectum must be cleaned out with enemata before each nutrient enema is given, and neglect of this precaution is a common cause of symptoms of rectal irritation. Singer recommends after each nutrient enema the administration of a suppository containing $\frac{1.5}{100}$ grain of extract of opium. When there is great tendency to tenesmus, eight to ten drops of tincture of opium with the other ingredients of the enema. It is very seldom that the enemata are not retained, but in this case the preparation of the mixture may be at fault; there may be too much salt, or an unsuitable ready-made peptone preparation may have been used. The patients with hemorrhage from gastric ulcer were kept in bed and nourished solely by the rectum for four to eight days. Singer says that recurrence of the hemorrhage took place only when patients secretly took solid food before they were allowed. When there is much pain a mixture containing subnitrate of bismuth and chloroform can be given by the mouth. Excessive feeling of hunger and thirst can be treated by a little opium (better than cocaine), and 200 cubic centimetres of water (for thirst), but if the thirst be excessive owing to diarrhea more fluid may be given. Singer also recommends exclusive rectal feeding to be tried in some cases of dilatation of the stomach, in some gastric neurosis including excessive vomiting of pregnancy, and after some abdominal operations. In cases of typhoid fever he thinks that he has diminished the great loss of weight by feeding patients by the rectum, in addition to the ordinary feeding by the mouth. Enemata containing alcohol and tea may be useful in collapse during acute diseases, and where alcohol cannot well be administered by the mouth.

Solanum Carolinense (Horse-Nettle) in the Treatment of Epilepsy.

Potts (*Therapeutic Gazette*, December 16, 1895) reports the results obtained with solanum carolinense in twenty-five cases of epilepsy, which came under his observation at the clinic for nervous diseases of the hospital of the University of Pennsylvania. Of these cases twenty-one were idiopathic, three organic, and one probably so. Eight of the idiopathic cases either did not return after the first visit or else were not under observation sufficiently long to offer a fair test. Of the remaining seventeen cases, five, including two organic cases, were not improved. In the remaining twelve the results showed more or less benefit from the use of the drug. Four of the five unimproved cases were benefited by other remedies, such as antipyrin and bromides, but in the remaining one no drug was of service. The dose of the solanum carolinense was thirty drops to a teaspoonful of the fluid extract three or four times daily. No unpleasant effects were observed, excepting a mild diarrhea, which in many epileptics is more of a benefit than otherwise. The conclusions derived from the results were as follows:

(1) That the drug has a decided influence for good upon the epileptic paroxysm.

(2) That this influence is probably not so great or so sure as that obtained by the use of antipyrin and the bromide salts, or even of the mixed bromides.

(3) That in those cases in which it is of service it relieves the paroxysms without causing unpleasant symptoms, such as are sometimes caused by the use of large doses of the bromides.

(4) That the dose ordinarily recommended (ten to fifteen drops of fluid extract) is too small, and that as much as a teaspoonful or more four times daily is often needed to secure results.

Chlorine in Typhoid Fever.

Wilcox (*American Journal of the Medical Sciences*, September, 1895) draws the following conclusions from the results obtained with chlorine in the treatment of typhoid fever: Chlorine can be safely administered until complete disinfection of the alimentary canal is obtained. Under its use the tongue becomes cleaner, the appetite and digestion better, the fever lower, and the stools devoid of odor. The general strength, the intellectual processes, and the nervous conditions improve. The disease is shortened in duration and usually proceeds to rapid and complete recovery.

Fatal Acute Poisoning by Cocaine.

Garland (*Lancet*, November 2, 1895) reports the case of a girl, aged 17 years, who swallowed for the relief of toothache upward of two drachms of a 10 per-cent. solution of cocaine hydrochlorate, the equivalent of twelve to fifteen grains of the alkaloid. She had almost immediately afterwards suffered from vertigo, followed by epileptiform convulsions, nine in number, and died within forty minutes. A superficial examination of the body, made twelve hours after death, revealed decided rigor mortis, a pallid, wax-like surface, cutaneous hypostasis in dependent parts, dilated pupils, clear conjunctivæ, teeth firmly clinched, and a placid expression of countenance. At the autopsy, which was made the following day, the internal appearances were as follows: Brain anemic, but otherwise normal; meninges deeply congested. Heart normal in structure; right ventricle contained a small amount of dark-colored fluid blood, the left ventricle was quite empty. Both ventricular walls were relaxed. The lungs were congested throughout, and everywhere highly crepitant. Much blood-stained frothy mucus was found in the bronchi. The spleen, kidneys, and liver were hyperemic, but otherwise normal. The stomach and contents were preserved intact for expert analysis and were therefore not examined. All the other organs were normal. This case lends support to the correctness of Mannheim's estimate that the fatal dose of cocaine is about fifteen grains. In the present state of our knowledge, it is, however, practically impossible to state the smallest lethal dose, seeing that a dose of two-thirds of a grain has caused death, and so minute a dose as one one-hundredth of a grain has given rise to symptoms threatening life.

The Reaction of Sulphonal in the Urine.

Lafon (*Semaine Médicale*, May, 1895) reports the case of a patient suffering from diabetes, in whom after several months' treatment the glycosuria had entirely disappeared. Later he took for two months twelve to fifteen grains of sulphonal daily. During this time the urine, when tested with Fehling's solution, gave the characteristic precipitate of the yellow oxide of copper observed in glycosuria, but when examined with the polariscope it gave a slight deviation to the left instead of to the right. The same results were obtained in twenty examinations. The reduction of the Fehling solution was probably due to the sulphonal itself, since the latter, when added to urine in the proportion of one grain to the litre, gave the same precipitate.

Apocodeine Hydrochlorate in Mania.

Toy (*Semaine Médicale*, No. 15, 1895) has employed apocodeine as a sedative in forty-eight cases of mania, the dose varying from one-third to one grain. In every instance the drug diminished the excitation, and often produced sleep lasting several hours. It never caused vomiting. As it increases peristalsis, it commonly acts as a mild cathartic.

OBSTETRICS.

UNDER THE CHARGE OF

BARTON COOKE HIRST, M.D.,

ASSISTED BY

RICHARD C. NORRIS, M.D., AND FRANK W. TALLEY, M.D.

The Female Pelvis in Primitive Races.

Stratz (*Nederlandische Tijdschrift van Verloskunde en Gynæcologie*, Sixth Year, Part 1, 1895) investigated a series of cases in Java, to test the accuracy of certain theories in respect to the relative characters of the pelvis in European and in barbarian or semicivilized women. Faayer, of Leyden, declared twenty years ago that the Javanese pelvis was unusually round at the inlet. Stratz reminds obstetricians that this theory was based on the examination of a few macerated pelves. He, therefore, measured a large number of pelves of Javanese women living up country. Two races were included in his series, the more primitive being darker, more slender, and smaller. The measurements showed little or no difference more than could be explained by the small general proportions of one of the races. The same may be said of the difference between the average Javanese and European pelvis. As it happens, however, the theory of Faayer seems substantially correct, the transverse measurement of the Javanese pelvis being, on an average, relatively small. The obstetric teacher should also bear in mind that Stratz found plenty of contracted pelves among these primitive women who, escaping the evils of civilization, do not enjoy its benefits.

Tuberculosis of the Human Placenta in Relation to Congenital Tuberculosis.

Schmorl and Kockel (*Beiträge zur pathologische Anatomie*, XVI, Part 2) state that the exact method by which the tubercle bacilli passed from the mother to the fetus was not understood at the time when Birch-Hirschfeld and Schmorl reported their case of congenital tuberculosis in 1891. Lehmann's observations show that in acute miliary tuberculosis during pregnancy the placenta may be affected with tubercle as well as the other organs. The placenta, it seems, may occasionally be affected in cases of chronic pulmonary as well as acute miliary tuberculosis. Autopsies on cases of advanced pulmonary tuberculosis frequently show circumscribed foci in organs other than the lungs, such as the liver, spleen, or kidneys. Gärtner has demonstrated that where animals with pulmonary tuberculosis are pregnant, the fetus is not so very rarely infected with tubercle bacilli. The present authors have met with three cases bearing on the subject.

(1) Autopsy revealed acute miliary tuberculosis; the subject was in the eighth month of pregnancy, and was brought to the hospital in an unconscious condition. Cesarean section was performed, but the child died after two hours.

(2) This patient died during pregnancy, with acute miliary tuberculosis.

(3) A case of chronic laryngeal and pulmonary tuberculosis,—died suddenly of profuse hemoptysis. Cesarean section was performed soon after death, but the child was found already dead.

In all the cases placental tubercle was found, but only a very little in Case III, and less in the placenta than in other organs in the other two cases. The tubercle bacilli were probably in all three cases carried to the placenta in the circulating

blood, but in No. 2, where there was also tuberculous peritonitis, the bacilli, though less likely, might also have been carried from the peritoneum into the uterus by the Fallopian tubes. In cases of acute miliary tuberculosis the bacilli circulating in the blood must be equally distributed to all organs, and the only way to explain why in Cases I and II less tubercle was found in the placenta than in the other organs is to suppose that the placenta is more resistant than other organs to the bacillus. In all three cases, tubercle bacilli were found in the fetal placenta villi, but only in Case II were any bacilli found in the body of the fetus. Even in this case there were no macroscopic changes, but bacilli could be detected in the liver and in a lymph-gland in the neighborhood of the liver. The authors think that the reason why only few bacilli had passed into the fetal circulation is to be found in the changes produced in the vessels of the tuberculous villi. These changes, consisting in the closure of vessels by the formation of hyaline thrombi and the overgrowth of endothelium, to some extent form a barrier hindering the spread of tubercle to the fetal circulation.

Sepsis during Pregnancy.

Bar and Renon (*Répertoire universel d'Obstétrique et de Genécologie*, September 25, 1895) presented at the recent Congress at Bordeaux a clinical report of a case of streptococcism in pregnancy. A woman was admitted into hospital suffering from high fever and about eight months pregnant. She experienced occasional pains. Before any obstetrical manipulations were performed, some cervical secretion was removed for examination. Cultivations proved that the secretion contained streptococcus. The labor was hastened on account of the illness of the patient. Specimens of maternal placental blood were cultivated and colonies of pure streptococci were obtained. The child died before birth. Samples of its blood from the placenta, liver, and heart, and fragments of the liver and lungs were cultivated. The cultures remained sterile. The mother died fifty-three hours after delivery, and pus was found in the parametrium. Bar and Renon maintain that the streptococcism provoked labor. Though the fetus succumbed, there is no evidence that the germs invaded the fetal organism through the placenta.

Strychnine in Pregnancy.

Olenyn (*Protocol of the Medical Society of Tombow* for 1894) has successfully used strychnine in sixteen cases for the correction of weak labor-pains in doses of $\frac{1}{32}$ to $\frac{1}{25}$ grain twice daily, at intervals, during the last six or eight weeks of pregnancy. Four of these cases were anemic primiparæ from 19 to 32 years of age with weak muscles; three were multiparæ under 30 years, with habitual weak labor-pains; four suffered from chronic metritis and had been pregnant at intervals of from three to twelve years; one patient had a small uterine fibroid; two had flabby uterus and relaxed abdominal walls; one had tertiary syphilis and general debility, and another diseased appendages with hysteria. In two primiparæ the forceps had to be used, and in one the child was dead; but in all the other cases delivery was rapid and regular and the children lived. The third stage lasted from ten to twenty minutes and *post-partum* contraction of the uterus was excellent.

Digital Exploration in Midwifery.

Crouzat (*Revue Obstétrique internationale*, October 21, 1895) disagrees with certain German obstetricians who oppose digital exploration in normal labor and

rely upon abdominal palpation. The diagnosis of normality may demand the introduction of the finger into the vagina. Crouzat's principles simplify digital exploration and guard against its dangers. Vaginal examination, he thinks, should be made as rarely as possible. One exploration at the beginning of labor and another immediately after the rupture of the membranes are usually sufficient. It is his practice to make the external parts antiseptic; the hands and forearms are then washed and brushed thoroughly. The nails must receive special attention. The washing is afterwards repeated in a 1 : 1000 bichloride of mercury solution. Great care in the introduction of the forefinger is strongly advocated. This should be dipped in sublimated vaseline and guarded by the thumb and other fingers whilst the hand is passed under the clothes and near the patient's thighs. On reaching the perineum the labia are parted by the thumb and middle finger. The forefinger is lastly introduced into the vagina without having touched any part of the patient or her clothes since the time it was made aseptic.

Pregnancy and Exophthalmic Goitre.

Signier (*Répertoire universel d'Obstétrique et de Gynécologie*, June 25, 1895) reports a case in which exophthalmic goitre began with a pregnancy, the symptoms ameliorating after delivery. He believes that the pregnancy was really the cause of the enlargement of the thyroid gland. Possibly the diminution in its size after parturition depended on some temporary condition in connection with the puerperium. Even so simple a cause as the necessary rest may explain the favorable change, which, after all, may not prove permanent.

Pregnancy in Apparently Imperforate Hymen.

Braun (*Centralblatt für Gynäkologie*, No. 23, 1895) was consulted by a newly-married woman who had found herself unfit for complete connection. He examined and found a virginal appearance of the external parts, a tight and narrow hymen, and pregnancy advanced to the fifth month. The patient had a generally contracted infundibuliform pelvis, and craniotomy was needed at the end of pregnancy. Braun notes that penetration must have been impossible in this case where pregnancy occurred before the patient suspected it.

Vaginal Extirpation of the Uterus after Labor.

Chrobak (*Centralblatt für Gynäkologie*, No. 21, 1895) is an advocate of this practice in cases of uncontrollable flooding where rupture is suspected, though he admits that the only two cases in which he acted on this principle died. In one case, a placenta-previa labor, violent hemorrhage set in during delivery, and a laceration involving the cervix was detected. A tampon was applied, but rapidly became soaked, and a second was firmly packed into the uterine cavity. Hemorrhage continuing, Chrobak resolved to remove the uterus through the vagina, as that proceeding seemed to him simpler than hysterectomy from above. The operation was not very difficult. The uterus was nearly six inches long, and as it proved difficult of extraction, a piece two finger-breadths wide was cut, like a slice made in an orange, out of the anterior wall. This permitted the organ to be easily withdrawn. There was very little hemorrhage during the removal of the uterus. Complete rupture of its wall was discovered. The laceration had apparently been enlarged when the second tampon was applied. The patient died. There are no

details given of the second case. In one case the whole operation was done in four and the other in eight minutes. As far as the facility of extraction is concerned, Chrobak considers his experience encouraging.

Cleidotomy or Division of the Clavicles.

Phänomenoff, of Kasan, Russia (*Centralblatt für Gynäkologie*, June 1, 1895), considers certain cases of delay in labor after the birth of the head, where the delay is caused by disproportion between the size of the child and of the pelvis, excluding locked twins, monsters, etc. Such delay after delivery of the head by means of forceps may be as unpleasant as unexpected. In some cases it is found that the head is scarcely completely born, but is pressed against the bony outlet, so that the finger must be pushed well into the vagina to reach the neck. On making traction on the head it is found that it will come a little farther, but will spring back when released. Moreover, the head shows no inclination to rotate externally, showing that the shoulders are held at the pelvic inlet. In such a condition of things the accoucheur may find himself at a loss, more so even than with any of the more ordinary abnormalities, such as shoulder presentation; and this because the large size of the child cannot be accurately determined till after the birth of the head, and also because the condition is a rare one. The usual procedure in such cases is to apply traction to the head and pressure either on the fundus or over the lower portion of the uterus. Dr. Phänomenoff recommends in addition an attempt to diminish the inclination of the pelvis by raising the sacrum. Should these measures fail, several fingers should be introduced into the genital canal, and an attempt be made to change the position of the shoulders. For example, if they be transverse above the brim, attempt should be made to bring them into the conjugate or oblique diameter of the inlet; or if they lie in the conjugate with one shoulder above the symphysis, attempts with combined internal and external manipulation are made to rotate the shoulders into the oblique diameter. Even should these measures fail, the necessary manipulations will have enabled the accoucher to diagnose the real cause of the delay. Under such conditions the child soon dies, and embryotomy then finds a legitimate indication. Phänomenoff now recommends that the head be drawn well to one side, the four fingers of one hand passed along the child, carefully recognizing the position of the shoulders, until one of the clavicles is felt. With care there is no great difficulty in passing up strong scissors, and with a few short clips dividing the clavicle and overlying soft parts near the sternal extremity. This is to be repeated on the opposite side and the operation is accomplished. The cut ends of the clavicles pass inward, and the bisacromial diameter is accordingly diminished. If no further abnormalities exist, the shoulders are easily brought down by traction with a blunt hook to assist if need be. Care, of course, is taken that the ends of the divided bone do not lacerate the mother's soft parts or the operator's fingers. Phänomenoff proceeds to relate a case where the operation was required to deliver the shoulders of a child which was found to weigh 5300 grammes.

Herpes Pharyngis.

Heller (*Weiner klinische Wochenschrift*, No. 30, 1895) reports the case of a female, aged 23 years, whose hard and soft palate, velum palati, and epiglottis became bedecked with an herpetic eruption. Worthy of note is the fact that there were no herpes on the external skin nor lips, nor was the nasal mucous membrane affected. There occurred a transitory faucial paralysis. Bacteriologic examination of the contents of the vesicles revealed staphylococci, but no diphtheria bacilli.

GYNECOLOGY.

UNDER THE CHARGE OF

CHARLES BINGHAM PENROSE, M.D.,

ASSISTED BY

H. D. BEYEA, M.D.

Statistics of Vaginal Hysterectomy for Uterine Carcinoma.

Schmid (*Centralblatt für Gynäkologie*, No. 43, 1895) reports the results of forty-two cases where vaginal hysterectomy was performed for carcinoma. Thirty were carcinoma of the cervix, seven carcinoma of the corpus uteri, and two a carcinomatous degeneration of myoma. Up to 1892 he has operated upon thirty-four cases with the following results: Seven died through operation, seven are free from return of the disease, twelve have a return, and eight failed to answer his communication.

Emphysema of the Abdominal Wall after Laparotomy.

Meinert (*Centralblatt für Gynäkologie*, No. 50, 1895), at the meeting of October 14 of the Dresden Gynecological Society, referred to eight cases reported in the literature (Madlener, Graefe, Winter, and Casperson) of emphysema of the abdominal wall observed after laparotomy, and records a case. In the writer's case this condition of artificial emphysema of the abdominal wall appeared after the operation of abdominal hysterectomy for the removal of a fibroid tumor. As in all other cases reported, the Trendelenburg posture had been employed during the operation. In the discussion following, Leopold stated that he had seen six cases of emphysema of the abdominal wall, and that in every case the Trendelenburg posture had been employed. He has noticed that the emphysema occurred between the peritoneum and muscle (that the peritoneum was sometimes easily separated from the muscle, particularly where there had been considerable manipulation in the peritoneal cavity) and in the subcutaneous areolar tissue. He also believes that it is not harmless, but that it increases the rapidity of the pulse, causes considerable pain, and makes the patient restless. It also may extend into the inguinal region or even, as in one case, to the axilla. In those cases where the disease tends to extend, Leopold advises early incision. Brosin said that he had seen three or four cases under the same conditions as those reported. He observed that healing was always disturbed, and believes there is another form of emphysema due to the formation of gas by bacteria. This last was not sanctioned by Meinert and Leopold. Osterloh stated that this emphysema could be avoided by placing the patient in the horizontal position before closing the abdomen. The greater amount of air would thus be expelled.

Investigations regarding the Length of the Sterilization Process in Steam under Pressure at a Fixed Temperature.

Christen (*Centralblatt für Gynäkologie*, No. 43, 1895). From a series of investigations to determine the sterilization power of steam under pressure upon the very resisting spores of the red potato bacillus and bacillus subtilis, the following conclusions were gained: With a temperature of 100° C. (1 atmosphere) to 115° C.

(1.67 atmospheres), the destruction of the organisms is dependent upon the length of the sterilization, the proportionate temperature, and the pressure. With 120° C. (1.96 atmospheres) there is comparatively sudden increase in the micro-organism destructive power of steam under pressure, so that between 120° and 135° C. (3.1 atmospheres) complete sterilization is gained in from one to five minutes. If one wishes an absolutely sure sterilization it is only necessary to have the temperature of the apparatus rise rapidly to 140° C. This rapid process of gaining steam under pressure at a temperature of 140° C. (3.56 atmospheres) must be considered in practising sterilization for surgical purposes.

The After-Treatment of Celiotomy.

Reichel (*Archiv für klinische Chirurgie*, Band L, Heft 2) considers the question as to whether it is advisable after the operation of celiotomy to stimulate or depress peristalsis, and, further, what influence treatment has upon intestinal paresis or ileus. He believes that, regardless of the fact that the operation may be aseptic, there may be a migration of bacteria, that these bacteria may be distributed over the entire peritoneum and may possibly be quickly absorbed and destroyed, but that, on the other hand, diffuse or circumscribed purulent peritonitis may result. Also, that if this purulent peritonitis is isolated the prognosis is always better. Granted that this is true, he concludes that in cases of intestinal resection and those celiotomies in which a portion of infected material is allowed to remain in the abdominal cavity, that the arrest of peristalsis is not advisable; that the administration of opium does harm. He advises that from the day of operation peristalsis should be slightly stimulated by the administration of small doses of saline water and the bowels should be opened on the second or third day. Should the symptoms of subacute intestinal paresis or ileus appear, probably due to intestinal adhesions, no food and only a small amount of water should be given; also that the stomach should be repeatedly washed out and opium given in suppository. Saline cathartics are now contra-indicated. If the patient's condition improves, an enema of water containing glycerin should be administered. If, after twenty-four hours, or the latest forty-eight hours, the patient's condition has not improved, the abdomen should be reopened. Where the trouble is thought to be due to mechanical occlusion of the intestine, as where there is advanced peritonitis, purgation is strongly contra-indicated. Reichel believes that simple mechanica occlusion is rare; that the greater number of cases are due to paresis of the intestinal muscle wall where the intestine is bent upon itself or looped: that this paresis and the stenosis is increased and the bowel distended when artificial peristalsis is induced. Therefore this condition is best treated by keeping the intestinal tract at rest. The abdomen should be reopened where there is sepsis and where the symptoms point towards mechanical obstruction.

Successful Ovariotomy on a Patient in her Eighty-seventh Year.

Matthews Owens (*Lancet*, March 2, 1895) reports an operation upon a woman of this age as being the most advanced age at which such an operation has been successfully performed. An interesting feature of this case is that six years previously the doctor had removed from her right side a parovarian cyst, and when summoned to diagnose the nature of this later growth, he naturally concluded that it was a fibro-cystic tumor of the opposite side. To his surprise, after cutting down upon the mass, he discovered that it arose from the right ovary instead of from the

left. The opinion is expressed, in view of this experience, that it might be better surgery to remove everything from the affected side in cases of parovarian cyst, instead of simply shelling out the diseased parovarium.

Had such a plan been followed in this case, there would have been no need for a second operation.

The Treatment of Snake-Poisoning with Antivenene, derived from Animals Protected against Serpents' Venom.

Fraser (*British Medical Journal*, No. 1807) found in the blood of animals immunized to the venum of serpents a protective substance which he calls antivenene. It can be obtained by feeding or by subcutaneous injection of the poison, the former method of production requiring larger dosage than the latter. He also found that the snake's serum had an antitoxic influence on the poison.

PATHOLOGY.

UNDER THE CHARGE OF

JOHN GUITÉRAS, M.D.,

ASSISTED BY

JOSEPH McFARLAND, M.D.

Antistreptococcus Serum.

Marmorek (*Annales de l'Institute Pasteur*, July 25, 1895, Tome IX, No. 9, p. 593) has observed that the virulence of the streptococcus pyogenes which rapidly attenuates upon the ordinary culture media can be increased and maintained by frequent passage through rabbits and transplantation to a culture medium, consisting of bouillon one part and human blood serum two parts. The serum most nearly reaching human serum in value for this mixture is asses' serum. By the method described Marmorek succeeded in securing cultures so virulent that one-hundred-thousand-millionth (un cent milliardième) of a bouillon culture—an amount so small as probably capable of containing only a single coccus—would kill a rabbit.

Marmorek is of the opinion that the streptococcus pyogenes and streptococcus erysipelatis are identical organisms.

The antistreptococcus serum is prepared by immunizing animals to the virulent coccus. The first injections are made with living cultures of organisms of rather feeble virulence, and are increased progressively in amount and virulence until finally a large animal, like an ass or a horse, can tolerate from 120 to 600 cubic centimetres of a culture of extreme virulence.

Three or four weeks after the last injection, the horse is bled and the serum removed from the coagulated blood. Much care has to be exerted lest the serum be secured at a time when it still contains either live streptococci or their toxic products. A rabbit injected with serum removed while the horse was still febrile died in cachexia eight days after the injection of two cubic centimetres of the sterile serum.

The value of the serum in this experiment showed that 0.1 cubic centimetre of the serum would protect rabbits against ten times the minimum fatal dose of a toxic bouillon culture.

The injection of the antitoxic serum into human beings with erysipelatous and suppurative affections showed that the serum had a distinct beneficial action, although no exact statistics could, in the short period of the studies, be made.

Anti-Anthrax Serum.

Marchoux (*Annales de l'Institute Pasteur*, November, 1895, Tome IX, No. 11, p. 785), following the line of investigation so popular at present, followed up the observations of Pasteur, Roux, Chamberland, and others, and, studying the bloods of animals immunized by Pasteur's method against anthrax, found in confirmation of the observations of Ogata and Jasuhara that they contained protective substances related to the antitoxins.

To secure large quantities of the anti-anthrax serum sheep were selected, are treated according to Pasteur's method for immunization, and the doses of virulent culture gradually increased until the animal is able to survive 300 cubic centimetres or more. These large doses cause active reactions, as shown by diminution in weight and elevation of the temperature. The fever sometimes continues as long as eight days. Intravenous injections do not cause so much local disturbance, but are more dangerous to the life of the animal. After such increase of immunity, experiment has shown the blood of the sheep to contain bacilli and toxic substances for a considerable time, so that it is not well to bleed the animal for fifteen days to three weeks.

The serum is secured in the ordinary manner. Its efficacy is, however, limited, and its strength, six days after the last injection of a culture, is described as 1 : 600. This means that three cubic centimetres of it protected a rabbit weighing 2000 grammes against a fatal dose of a bouillon culture.

Later on the blood of the same animal developed greater strength without fresh inoculations, so that in fifteen days the activity was increased to 1 : 1000,—*i.e.*, two cubic centimetres protected a rabbit of 2000 grammes.

In thirty days the activity of the blood ceases.

The serum seems to exert a distinct beneficial influence upon animals, its injection into susceptible animals conferring upon them a certain degree of immunity, and into diseased animals generally recovering then from the disease.

Upon the Preparation of Anti-Anthrax Serum.

Achille Sclavo (*Centralblatt für Bakteriologie und Parasitenkunde*, December 23, 1895, Bd. XVIII, No. 24, p. 744) describes a method of immunizing sheep and developing an antitoxin in their blood similar to that described by Marchoux. The strength of the serum was about the same,—*i.e.*, two cubic centimetres were sufficient to protect a rabbit weighing 1000 to 2000 grammes against a twelve- to twenty-four-hour old culture of virulent anthrax in one cubic centimetre doses.

MISCELLANEOUS.

THE WORLD'S CONGRESS OF MEDICO-CLIMATOLOGY

will hold a National Convention in San Antonio, Texas, February 20, 21, and 22, 1896. The Congress is made up as follows: the secretary of each State Medical Society is empowered to appoint ten representatives to act in behalf of their society at our National and International Convention, and of such members as are passed upon favorably by a Committee on Membership, and of representatives of other medical societies.

BOOK NOTICES.

THE PRINCIPLES AND PRACTICE OF MEDICINE. Designed for the use of Practitioners and Students of Medicine. By WILLIAM OSLER, M.D., Fellow of the Royal College of Physicians, London; Professor of Medicine in the Johns Hopkins University, and Physician-in-Chief to the Johns Hopkins Hospital, Baltimore, etc. Second Edition. New York: D. Appleton & Co., 1895.

The success of the first edition of this work was most pronounced, and deservedly so, for it was not merely a *résumé* of current literature, but an exposition of medical science based upon the extensive and carefully-recorded clinical experience of a master in the profession. In the present edition the admirable arrangement of the original work has not been changed, but sixty-four pages of new matter have been added to the text, and a number of new illustrations have been introduced. Many of the chapters have been rewritten and amplified, notably those treating of malaria, diphtheria, septicemia, pyemia, leukemia, and appendicitis. In speaking of the Brand method of treating typhoid fever, the author remarks that it "has steadily advanced in favor both in the hospital and private practice, and, in spite of the difficulties and the unpleasant features necessarily connected with it, there is no plan of treatment which gives such results. In the hospitals which carry out a strict hydrotherapy the death-rate is about 7 per cent., while in other institutions the death-rate is from 10 to 15 per cent." In the chapter on diphtheria more than a page has been devoted to the antitoxine treatment, which concludes with the following comment: "A very much larger number of cases must be treated over a long period before final judg-

ment can be reached; meanwhile the treatment should be adopted in the cases of true diphtheria." Short descriptions of the Bubonic plague, of the foot and mouth disease, of infantile scurvy, of the hemorrhagic diseases of the new-born, and of subphrenic peritonitis have been added.

In the chapter on myxedema due consideration has been given to recent investigations. "Within six weeks," says the author, "a poor feeble-minded, toad-like caricature of humanity may be restored to mental and bodily health." In neither edition of the work can we find any description of chronic myelitis. Nearly every page shows the evidence of a thorough and careful revision, and those who consult this late edition will surely find the best that can be written at the present time upon the subject of internal medicine.

Appendix to Dunglison's Medical Dictionary. Twenty-first Edition. Philadelphia: Lea Brothers & Co., 1895.

Two years ago, when the twenty-first edition of this work appeared, we remarked that enough new material had been introduced to keep it in the front rank of medical lexicons. In this edition not only was the book remodelled but 44,000 new words were added. Although only two years have elapsed since this last revision, the accessions to medical terminology have been so numerous that it has been found necessary to issue an appendix which is to supplement the copy of the twenty-first edition. In the twenty-three pages constituting the appendix will be found over a thousand new words, most of which have reference to pharmaceutical or bacteriological subjects. There are a few errors in spelling which should be corrected in subsequent reprints,—"Hydrastinæ hydrochloras" should be hydrastininæ hydrochloras; "saliphen," salophen, "naphthalinum," naphtalinum.

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MARCH, 1896.

SHOULD THE APPENDIX BE REMOVED IN EVERY CASE OF APPENDICULAR ABSCESS?

By J. William White, M.D.,

Professor of Clinical Surgery, University of Pennsylvania; Surgeon to the University and Philadelphia Hospitals.

Our clinical knowledge of appendicitis in both its medical and its surgical relations has increased vastly in the last few years, but even now no subject so prominently before the surgical world is more replete with interesting and important points admitting of legitimate differences of opinion and requiring further investigation and experience for final settlement. The true mortality of early and prompt operation in all cases in which appendicitis is present (as distinguished from cases in which it is only diagnosticated); the true mortality of the operation of removing the chronically-diseased appendix between acute attacks (as distinguished from the mortality of removal of the normal appendix); the actual percentage of ventral hernias, peritoneal bands, and other annoying sequelæ; the existence or non-existence of "catarrhal" appendicitis and of "stercoral typhlitis;" the alleged essentially infective character of all cases of appendix inflammation; the proportion of second attacks after one mild one, and the proportion of those which may be avoided by dietetics; the value of the appendix bacteriology so often relied on to demonstrate the abnormality of appendices removed by operation; endless minor differences as to the site and character of the wound, the treatment of the stump of the appendix, and other details of technique, etc.; all these are not only problems awaiting solution, but questions many of which obviously have two sides each worthy of respectful consideration. In regard to some of them it may be said that to

the surgical mind having the very least judicial quality a final conclusion satisfying in every respect is to-day logically impossible.

But there are other points as to which I have thought that surgeons who combined experience with good judgment were equally well agreed. I believe, for example, that few, if any, would dissent from the following rules: Immediate operation is indicated whenever the onset of a case of appendicitis is marked by both sudden ness and severity; whenever, during even a mild attack, the symptoms at the end of forty-eight hours are unrelieved or are growing worse; whenever in cases seen later a firm, slowly-forming, well-defined mass is to be felt in the right iliac fossa; whenever at any time a sudden increase in the acuteness of the pain and a rapid diffusion of tenderness occur; whenever there is good reason for believing the appendix infection to be tubercular in character; whenever attacks of any type have been numerous, or are increasing in either number or gravity, or have unfitted the patient for work or activity, or have caused local symptoms which are permanent and persistent, or have at any time put the patient's life in great danger.

These indications for operation are, I believe, practically undisputed. The list would certainly be added to by some surgeons. I have not tried to make it exhaustive, but merely desire to illustrate my expressed opinion that upon many exceedingly important points the practitioners and the teachers of surgery, the men to whom the profession has a right to look for calm, unprejudiced, and unselfish guidance on surgical questions, are of one mind.

Other questions there are as to which the same assertion does not apply, and one of these has always been a source of grave anxiety to me, and, I know, to many of the best operators in this country. A short time ago I summarized my own view in regard to it by saying "that it must be determined by future experience whether cases seen from the third to the sixth day, which present indications of the beginning circumscription of the disease by adhesions, and which tend to the formation of localized abscesses, will do better with immediate operation with the risk of infecting the general peritoneal cavity, or with later operation when the circumscribing wall is stronger and less likely to be broken through." This is the time which Richardson has described as "too late for the early operation and too early for a safe late operation;" and he has emphasized this opinion by adding that "there is no more difficult operation in surgery than that of removing an appendix at this stage without infecting the general peritoneal cavity."[1]

The very fact that this problem has received the most careful

[1] American Journal of the Medical Sciences, January, 1894.

and anxious consideration on the part of many able men presupposes that there must be *some* cases in which it is wise to respect surgically the barrier against infection set up by inflammatory adhesions, and, if this be true, that in a certain proportion of them, the appendix forming an integral part of that barrier, it is also wise to allow it to remain undisturbed. My view in regard to this important point was, I thought, identical with that of every surgeon competent by training and experience to pass upon it, and was recently formulated as follows: "If there is a circumscribed abscess, it is poor surgery to insist in every case and at every period upon finding and taking away the appendix in the face of all obstacles. In many cases of circumscribed abscess, and especially in those in which the appendix is bound down by adhesions in the depth of the wound, the surgeon should be content with evacuation, irrigation, drainage, and packing with iodoform gauze. Persistent search for the appendix and attempts at its removal in these cases are attended with such danger of opening the peritoneal cavity that they are not to be recommended." My belief was, and is, that large numbers of cases demonstrate the truth of this proposition, that increasing experience shows to each operator that there are a not inconsiderable number of cases in which it is absolutely necessary to apply it; and that it should be placed among the facts regarding appendicitis which can be safely accepted by the profession. I have found, however, that it is not fully understood by our medical colleagues, and is apparently controverted by some surgeons, as I have seen in a recent article statements which are diametrically opposed to the view I have just set forth, and which I may cite as a good example of the teachings and practice to which I object. The writer says, "In operating upon pus cases in which the appendix is involved in the wall of the abscess cavity, I believe that it is possible and always advisable to make the operation a complete one, as in no other way is recovery assured. To leave an appendix which has sloughed off, or has a perforation in it, or which has been intensely inflamed by migration of micro-organisms through its walls, with the certainty of fecal fistula or subsequent attacks, I believe to be bad surgery. It is my practice to remove the appendix in all cases. Certain it is that by the proper disposition of gauze and careful attention to technique, an appendix which is deeply embedded in a wall of lymph, whether it makes a portion of the abscess cavity or not, can be removed, and the dangers which attend its removal are far less than those which occur when it is allowed to remain. A practice which I believe is a frequent one is simply to evacuate the collection, there being no attempt made to remove the appendix if it be not

plainly visible. This I consider, with all due deference to the surgeons who practise it, incomplete surgery."[1]

It was apparent that if this were true both my practice and my teaching had been at fault, and it led me to a serious consideration of the matter, with the result, however, of increasing my confidence in both the theoretical and the practical soundness of my original opinion. In the first place, the assumption that to leave an appendix which has sloughed or become perforated or has been the subject of infectious inflammation means the "certainty" of fecal fistula or of subsequent attacks of appendicitis was positively contradicted by my own experience and by that of the profession.

To speak first of the former: I have now operated and left the appendix in thirty-seven cases of circumscribed abscess. Every one of those patients is alive to-day. In two of them a small fecal fistula formed and closed spontaneously and permanently. In only three of them have I had to operate a second time, and in two of these the appendix was then removed with the greatest ease. In the third, still under treatment, it had become obliterated. That experience alone was therefore sufficient to convince me of the incorrectness of that portion of the statement in question. Nor did I believe that a deeply embedded appendix, "whether it makes a portion of the abscess cavity or not" (I suppose abscess wall was meant), can be removed "in all cases" with less danger than ensues from allowing it to remain. The fact that I had had no mortality in a reasonably large number of cases treated in this manner would of itself justify one in doubting the truth of this sweeping assertion. But as to both of these points ample contradiction was to be found in current surgical literature.

Treves, one of the earliest and boldest of the operators upon the appendix, says, "The wisdom of doing no more than is necessary, or as little as is obvious, is well illustrated in these cases. A clump of adherent intestines will often cover and protect a perforation, and the ubiquitous lymph will many times close such an opening with more speed and security than are provided by any system of suturing. As the surgeon, therefore, reaches what appears to be the starting-point of the peritonitis, he must proceed with the utmost caution, and be not only prepared but rather inclined to leave the actual *fons et origo mali* undemonstrated. The main purpose of the operation is to allow a noxious exudation to escape, and, if possible, to free the peritoneum of the cause of its trouble. In the class of cases now under discussion, a perforation will be very often the starting-point of the peritonitis; the lapse of time and the plastic character of the inflammation afford evidence that the perforation is for the time

[1] Medical News, December 21, 1895.

being closed. If the operator can rid the serous cavity of the effects of the perforation, he may very often leave the breach itself to be dealt with by natural means."

Of seventeen cases in which Fowler did not remove the appendix, and which recovered, there was recurrence in only two within the next two years. The remainder had gone for variable periods, three of them for between three and four years, without any symptoms.

Richardson, in reporting one hundred and eighty-one cases, says, "If for no other reason, the low mortality in cases of circumscribed abscess, and the perfectly satisfactory permanent results that have followed simple incision and drainage, are sufficient grounds for limiting our operation to the cavity itself," and adds, "I think all will agree with me that cases of abscess should be opened and drained. Most surgeons believe that in cases of localized peritonitis no attempt should be made to separate the adhesions for the simple purpose of removing the appendix. I have no doubt whatever, from my own experience and from what I have seen of the work of my colleagues, that it is extremely dangerous to break down the barriers between an appendicular abscess and the rest of the peritoneal cavity. It is impossible in many instances, even with the greatest care, to avoid infecting the general peritoneal cavity." Of forty cases reported in his table in which the appendix was not removed, recovery took place in every instance, and he says that all fecal fistulæ ultimately healed, and that there was subsequent trouble in only two instances.

To satisfy myself, however, that my own beliefs were to-day in general accord with those of the men who have been the recognized leaders in this branch of surgery in this country, I asked for an expression of opinion upon the subject from my friends Drs. McBurney and Bull, of New York, Senn, of Chicago, Halsted, of Baltimore, and (to be certain that with increased experience his opinion had not changed) Richardson, of Boston.

Dr. McBurney said, "The question which you put to me in regard to the propriety of insisting on the removal of the appendix in all abscess cases is one which I am glad to answer, for in some instances the question is a grave one. I have on numerous occasions, both public and private, expressed my views on this point. There are certainly some cases, not few in number, in which the appendix is so deeply embedded in the wall of the abscess, or so difficult to define at all, that to insist upon its discovery and complete removal would be to incur quite unjustifiable risk. One would wish always to be assured when the operation is over that the appendix had been completely removed and its proximal end properly secured. The accom-

plishment of this desirable result may, however, in some cases be accompanied by such great prolongation of the operation under unfavorable conditions, and by such great danger of seriously infecting fresh peritoneal surface, that one had better be content with properly evacuating, cleansing, and packing the cavity, leaving the appendix or its remnant to be disposed of by its obliteration in the wound-healing, or by its removal at a later and more favorable time through a second operation.

"It should not be forgotten that the appendix is not infrequently entirely destroyed by the suppurating process before operation has been done at all. If, in such cases, indefinitely prolonged search were to be made for the appendix, a fatal result would be inevitable, and even the post-mortem examination would fail to reveal its presence. In every case of abscess arising in disease of the appendix, a reasonable effort should be made to find and remove the primary cause. What effort is reasonable and what unreasonable must be determined by the operating surgeon, who would, of course, take into consideration the condition of his patient, the general character of the abscess cavity and surroundings, and the length of time that would probably be required to accomplish his object. Secondary operations for the removal of an appendix which has been left behind, for good reasons, at the primary operation, are not especially difficult, and are quite uniformly successful."

Dr. Bull said, "I think you raise a point of great interest, and believe your criticism proper. I do not agree with the statement that it is 'always advisable to make the operation a complete one' in the class of cases referred to. It has been my practice to carefully evacuate and cleanse by dry sponging with sterilized or iodoform gauze the pus cavity, then to disinfect its walls with a bichloride solution 1 : 5000, and then to search for and remove the appendix in case it be readily found and easily separated from the adhesions. In general I have found this feasible in cases operated on up to the seventh or tenth day. In cases operated on at a later date, or those where the abscess is distinctly circumscribed with firm walls and containing several ounces of pus, I have not attempted to remove the appendix. In many of those last mentioned it is found as a slough of the mucous membrane and in the pus. Nature has cast it off, and there is no certainty of fecal fistulæ, nor subsequent attack.

"The plan of always looking for the appendix is fraught with the risk of infecting the healthy peritoneum beyond the barrier of adhesions,—an immediate danger; the plan of leaving it under the circumstances mentioned exposes only a small proportion of patients to risk of subsequent attack or fistula, both remote dangers, which

can be met by secondary operations. I believe your view is correct and your practice judicious."

Dr. Senn said, "It has been my habit for years in cases of acute appendicitis with extensive suppuration to simply incise, disinfect, and drain the abscess, unless the diseased appendix could be removed without any additional risk. I have seen a number of such cases recover permanently without any additional surgical interference. I regard persistent search for the appendix in such cases hazardous, as it often results in opening of the free peritoneal cavity and fatal septic peritonitis."

Dr. Halsted said, "You ask me if I remove the appendix in every case of appendicitis. I do not. If there is only one abscess and it can be evacuated without entering the uninvolved part of the peritoneal cavity, I almost invariably treat it simply by incision and drainage. What to do in the future the answers which I receive to the following questions will assist me to determine.

"(1) How often are these circumscribed abscesses which have been incised or have spontaneously evacuated themselves followed by recurrent attacks? (2) How often are recurrences in this special class of cases fatal? The chief danger in searching for the appendix in the cases under consideration is, of course, peritonitis. But it has already been demonstrated literally thousands of times in operations for appendicitis that peritonitis is not likely to follow the inoculation of the peritoneum which invariably occurs in these operations. I, for example, have never had peritonitis supervene upon an operation for appendicitis, and I am sure that I inoculated the peritoneum in every instance. But I believe, as I have said already, that we must know more about the ultimate results and ultimate conditions in these cases before we can be sure that it is not usually or always better to at least wait until the abscess cavity has healed entirely or contracted to a fine fistula than to remove the appendix when it forms part of the wall of a large circumscribed abscess and when its removal necessitates an otherwise probably unnecessary opening and inoculation of the peritoneal cavity. The delayed operation is equivalent to an operation between attacks which surgeons contemplate with little or no apprehension. Another reason for postponing the removal of the appendix, if indeed the appendix must be removed, in these cases is the danger from adhesions which extensive packing causes. There is ordinarily no necessity for packing in the operation performed in the interval. But the packing should be unusually extensive when the appendix is removed from the wall of a large abscess. On the other hand, the removal of the appendix or its remains is surely not attended with more danger (probably with less danger) of peritonitis in the

circumscribed abscesses in which nature has the infection under control than in the ordinary acute case. In the ordinary case, however, it is surely safer to remove the appendix than to leave it, but in the cases under consideration the indications for its removal at the primary operation are not clear."

Dr. Richardson said, "I support your position strongly. I believe that a man is a great deal better off living, with an appendix at the bottom of an obliterated abscess cavity, than dead, with a beautiful specimen in a bottle on the surgeon's table. I have no doubt whatever that many cases which under conservative methods would recover are converted into cases of fatal general peritonitis by removing the appendix when it forms part of the wall of an abscess cavity. We are very apt to think in such cases that the peritonitis pre-existed,—preceded the operation. I do not believe that this is the case; I am fully convinced that many cases that are reported as cases of hopeless general infection are made hopeless and general by the rash methods frequently advocated to-day. Not that I would refrain from removing the appendix, once the peritoneal cavity was opened. I think that the harm is then done, and I always then take the appendix out. In a localized abscess, especially if it has been going on a week or two, and the walls are firm, separation of adhesions, in my judgment and experience, is inadvisable,—more than inadvisable,—it is entirely unjustifiable.

"I am working up an article to be called 'Further Observations on Appendicitis.' One of the elements in this article is to be the subsequent history of those cases of localized abscess operated upon by simple drainage. I have been doing these operations for six years, perhaps,—in large numbers for the last four years. Perhaps sufficient time has not elapsed to enable me to determine the possibilities of recurrence. The number of cases that have not been thus far permanently and completely cured by simple evacuation of an appendicular abscess is extremely small, and I believe that we shall find that certain cases only are liable to recurrence,—those principally, for instance, in which the original perforation is somewhere in the middle of the appendix, or at its tip, and there remains between the perforation and the attachment to the cecum a considerable interval of vulnerable tissue."

In a second letter from Dr. Richardson, he says, further, "I agree perfectly with you in the statement of your position,—viz., 'In many cases of circumscribed abscess, and especially in those in which the appendix is bound down by adhesions in the depth of the wound, the surgeon should be content with evacuation, irrigation, drainage, and packing with iodoform gauze. Persistent search for the appendix

and attempts at its removal in these cases are attended with such danger of opening the peritoneal cavity that they are not to be recommended.' The principal reasons upon which I base my opinion as to the best mode of treatment in localized peritonitis from affections of the appendix is the great danger of infecting the peritoneal cavity in spite of the greatest precautions and the most admirable technique. Many cases of localized inflammation are undoubtedly converted into cases of general and fatal infection by the necessary separation of adhesions in removing the appendix. I have no doubt whatever that this is a fact. In a very large number of cases I can recall but two or three in which simple evacuation and drainage, without removal of the appendix, have not been followed by a cure thus far permanent.

"The ideal method of treating these cases is to tide the patient over the existing emergency by simple drainage, and, after permanent recovery has taken place, to remove the appendix. At the same time, the scar, which in cases of drainage always threatens a ventral hernia, should be excised, and the wound tightly closed. Such a secondary operation is always advisable in ventral hernias; it is imperative if the slightest evidence of recurring trouble exists.

"I cannot understand the position of those who are willing to expose patients to the dangers of general infection—as they must of necessity expose them—in breaking down the barriers of a localized peritonitis."

It seems to me that it would be useless to submit further evidence. The foregoing is in accord with both clinical experience and surgical principles. Every medical man knows of the inflammatory obliteration of mucous channels; of the retrograde metamorphosis and disappearance of infected sloughs or of their fibroid transformation into cicatricial tissue; of the shutting in of abscess cavities with infected walls and of the coincident death of the bacteria therein as the supply of pabulum is cut off; of the spontaneous healing of fecal fistulæ. On the other hand, most surgeons of to-day have knowledge of cases in which patients with almost purely local symptoms, in excellent general condition, and with distinctly circumscribed abscess, have died of general peritonitis within forty-eight hours after the removal of a deeply-embedded and adherent appendix.

It must be remembered that comparison is not to be made between such removal and purely medical or non-operative treatment.

The comparison I desire to draw is between the routine method of insisting upon finding and taking out the appendix "in all cases," and the really surgical plan of sacrificing non-essentials, in an operation, to avoid dangers threatening life; of profiting by the accumu-

lated experience of one's co-workers; and of aiming first at the recovery of the patient and only secondarily at the performance of a theoretically "complete" operation.

If the profession at large will weigh the evidence before it as to this important point in surgical practice there can be no doubt as to the decision which will be reached. Probably no one of us who, in his own person, had any of the above-mentioned indications for operation would refuse it; it is certain that in such event he would prefer to have the appendix removed if it were possible to do so without adding to the risks of the case. These points are not under discussion. The question which every practitioner and especially every operator ought to ask himself is whether it is for the best interests of his patients that he should acquiesce in or try to live up to a rule which, in the face of the foregoing evidence as to the resulting increase in mortality, asserts the possibility and the propriety of removing the appendix *in all cases* of appendicitis.

THE EYE SYMPTOMS OF INTRACRANIAL TUMORS.[1]

By William F. Norris, M.D.,

Professor of Ophthalmology in the University of Pennsylvania.

It has been known in a vague way since the earliest periods from which any medical records have survived that the integrity of the visual functions was menaced by intracranial disease, and that blindness often resulted from it; but it is only since our advancing knowledge of normal and pathological anatomy has given us a better acquaintance with the course of the cerebral nerves and of the location of their mid-brain and cortical centres that we have had any very distinct ideas in this matter, and that we have been able to utilize them in the recognition and location of intracranial tumors. The interest in this subject has been much heightened since the introduction of the ophthalmoscope has enabled us, with the aid of the cornea and of the lens as magnifying-glasses, to study the changes which take place in the distal end of a living cerebral nerve.

Since von Graefe, in 1854, first called attention to the altered appearances of the intra-ocular ends of the optic nerves, which may be seen in most cases of inflammation of the basal meninges and of intracranial tumors, the study of these changes, their diagnostic significance, and mode of causation has been the subject of constant

[1] Read in the discussion on Intracranial Tumors before the College of Physicians of Philadelphia, February 19, 1896.

discussion and fruitful investigation at the hands of numerous clinicians and pathologists.

It is, however, not alone to the nerve of sight that we must turn for information as to the eye symptoms of intracranial growths. The eye and its appendages being supplied by five other cranial nerves, three of which are devoted exclusively to these organs, we may expect pressure on, or degeneration of, any part of their trunks, or of their mid-brain or cortical centres to produce interference with their functions and noticeable symptoms of disturbance. Thus, double vision due to impaired action of the straight or oblique muscles, paresis of the pupillary or ciliary muscles, loss of power in the levator or in the orbicularis, are all of frequent occurrence, and aid us in diagnosticating and localizing an intracranial growth.

Let us consider first those symptoms which are due to diseased or impaired action of the nerve of sight. One of the most common of these is the occurrence of papillitis and of lesser grades of optic neuritis.

Papillitis.—Inflammatory changes are present in the intra-ocular ends of the optic nerves at some stage of the affection in about 90 per cent. of the cases of intracranial growth and of basilar meningitis. There is increased redness of the disk with serous effusion between the nerve-fibres and undue fulness and tortuosity of the retinal veins. The normal boundaries of the disk are at first veiled by the hazy retinal fibres, but soon entirely hidden by their increasing swelling and opacity. The disk becomes prominent and projects as a small irregularly rounded mass into the cavity of the eyeball. This prominence is usually highest at the nasal side, where the nerve-fibre layer is normally at its thickest. The capillaries and veinlets on the surface of the swollen disk become so distended that they are readily visible by examination in the upright image, while the swollen and hazy nerve-fibres often hide from view a considerable stretch of the veins and arteries soon after their emergence from the disk, which reappear once more further in the periphery of the retina, where the fibre layer is normally thinner and still retains its transparency. After a varying period in which these appearances of vascular turgidity remain unchanged, the lymph effused into the head of the nerve becomes opaque and commences to contract, so that the smaller vessels are constricted and hidden from view. Later still, the swollen papilla begins to shrink, and, if the patient survives, after a period of some months slowly regains the retinal level, so changed and contracted, however, that the conducting power of the nerve-fibres is usually entirely abolished, the capillary vessels shrunken, and we have a whitish, opaque, and atrophic disk.

The Vision often nearly Normal in the Early Stages.—In the early stages of the swelling of the disk there is often wonderfully little interference with the acuity of vision, and in a strong light we frequently find normal acuity in a papillitis which has become quite marked. In fact, it is only after the swelling has existed for some time, and has reached a high grade, that we have marked diminution of the visual acuity and increase in the size of the blind spot, with contraction of the color and form fields, symptoms which are the rule when from long-continued pressure and from the contraction of the exudation the swollen disk commences to shrink. Owing to this circumstance, the early symptoms of intracranial growths and accompanying papillitis are at times overlooked. I well remember the case of a gentleman who had been indisposed for some time, but was not thought to have any serious sickness, who came to me complaining of headache and saying that his vision became blurred after looking at any object intently, symptoms such as are frequently found in cases of slight hypermetropia with impaired health. I knew that his vision had previously been perfect and his eyes nearly emmetropic. There was now a slight falling off in his visual perceptions, and the acuity, which had previously been $\frac{6}{6}$ or better, was now $\frac{6}{7}$, and as I gradually pulled down the window-shade and darkened the room, I found that his vision diminished in the feeble light in a ratio very much greater than did my own. The ophthalmoscope showed incipient choking of the disks, with a prominence at the summit of about 2 D.

This undue diminution of central and peripheral acuity of vision with diminished light is a symptom either of interference with the function of the retinal epithelium, as in the early stages of pigmentary degeneration of the retina, or of interference with the conducting power of the nerve-fibres from swelling or from contraction, as in cases of neuritis with consecutive atrophy. Mere feebleness of the general health does not, if any existent optical defects are corrected by proper glasses, cause diminution of the acuity of vision, although it produces rapid fatigue and blurring, often with annoying after-images. It is also noteworthy that patients with papillitis do not usually complain of phosphenes.

The termination of choked disk is, as previously mentioned, usually in atrophy of the optic nerves, provided that the patient survives his intracranial trouble long enough. We see, however, occasionally in children a complete atrophy of the intra-ocular ends of the optic nerves as the sole ocular evidences of a previously-existent tubercular meningitis, and also cases of syphilitic disease of the brain and its membranes, where the patient after prolonged use of alteratives retains a moderate amount of vision, often sufficient to enable

him to read comfortably and to do ordinary work. In the last-mentioned cases the intra-ocular ends of the optic nerves by their blue-gray discoloration and by hazy edges still give evidence of a previous papillitis.

The Stage of Intracranial Disease at which Papillitis occurs.—While I believe that papillitis occurs in about 90 per cent. of the cases of intracranial growth at some stage of the disease, it is by no means always an early symptom, but often develops only when the case approaches its termination. Large intracranial growths may long be without it, while small ones may rapidly produce it. Just so long as the growth of the neoplasm is slow and the absorption of surrounding tissue proceeds *pari passu* with the development of the tumor, we usually have no choked disk; but any vascular storm arising either from rapid growth and congestion, or from such a location of the tumor as causes compression of some of the sinuses of the dura mater, will usually produce it. Rapid development of papillitis is especially apt to occur when the lateral, the jugular, or the superficial petrosal sinuses are pushed against the bony walls of the skull, and thus cause swelling of these venous channels with partial stasis of the circulation and leakage of serum into the subdural and subarachnoid spaces.

The Ordinary Appearances of Papillitis contrasted with the Swelling produced by Pressure on the Optic Nerves close to the Optic Foramen.—While papillitis more or less characteristic in appearance is one of the most common symptoms of intracranial tumor in most parts of the cranial cavity, in some few cases where the tumor is located near the sella Turcica and growing along the wings of the sphenoid bone compresses each optic nerve close to its exit into the orbit, we may have quite a different ophthalmoscopic picture.

Here we find pallid, although moderately swollen, disks with intense gray haze on their surface and on the adjacent retinal fibre layer, with complete absence of the development of the veinules and capillaries, usually so characteristic of papillitis. Such growths, from their location, at times also press on the olfactory nerve and on the ethmoidal and sphenoidal sinuses, and give rise to the most unpleasant sensations of disagreeable odors and to annoying dryness of the nose and fauces.

Recurrent papillitis does not occur after complete atrophy of the disks, but as long ago as 1879 Gowers has recorded cases occurring in incomplete atrophy with partial subsidence of the swelling. Of late years the great increase in the practice of trephining the skull for brain lesions has furnished a considerable number of cases where the symptoms of swelling and engorgement of the disk have

notably diminished after trephining, even when the tumor has not been removed.

In some such cases, as well in some in which the tumor has been removed, there is a temporary diminution of the choking of the disk followed by a recurrence and increase of the papillitis when the tumor has repullulated or the wound has closed. I have only seen one such case in a patient under the care of my colleague, Dr. J. William White, with a tumor near the arm centre of right hemisphere of the brain, which was subsequently reported in full by Dr. A. C. Wood.[1] In this instance after partial subsidence of the papillitis there was a marked increase of the swelling of the disk after the healing of the wound and the repullulation of the tumor.

Pathology of Papillitis.—It was at one time supposed that papillitis might be produced by augmented intracranial pressure on the cerebral sinuses causing congestion and intravenous tension in the ophthalmic veins and through them in the head and of the optic nerves, but the extremely free anastomosis which has been shown to exist between the orbital and facial veins renders this mode of origin improbable.

Palsy of the sympathetic filaments which are given off from the carotid plexus has also been supposed to be a cause of papillitis, but the fact that intracranial tumors in the most diverse positions may give rise to it, and that the congestion is limited to the head of the nerve, while the branches going to the pupils and the eyelids are unaffected, speaks strongly against this view.

On the other hand, the frequent occurrence of subdural and subarachnoid effusion, with distention of the ventricles with serum, the pyriform dilatation of the dural sheath of the optic nerve just behind the eyeball, and the occasional demonstration of tumor elements and detritus in the tissue of the lamina cribrosa and of the head of the optic nerve have inclined most investigators to the view that papillitis is a local inflammation of the intra-ocular ends of the optic nerves, caused by infiltration of the head of the nerve with infected serum. This fluid passes down between the pial and dural sheaths of the nerves, carrying with it ptomaines, bacilli, and tumor elements, which, owing to neoplastic or to degeneration processes in the intracranial growth and its vicinity, have found their way into the subdural and subarachnoid spaces; and which, accumulating at the distal ends of these lymph-channels, cause an infectious and symptomatic inflammation.

The accumulation of serum, probably infected, in the tissue of

[1] University Medical Magazine, January, 1895.

the head of the nerve and around it has been demonstrated in many autopsies, but the infectious nature of the infiltration is, I believe, only positively proved in those cases in which tubercle elements and bacilli have been found in the intra-ocular end of the nerve.

Symmetrical Defects in the Fields of Vision and Homonymous Lateral Hemianopia.—The disturbances in the circulation and nutrition of the intra-ocular ends of the optic nerves are by no means the only valuable symptoms of intracranial growths, which the affections of the second pair present to us. The various forms of symmetrical defects of the visual fields are worthy of careful study as presenting evidence, and in many instances localizing evidence of an intracranial growth.

Owing to the partial crossing of the fibres at the chiasm of the optic nerves the right side of each retina is supplied with fibres from the right optic tract and from the right visual centre, while the left half of each retina is supplied from the left optic tract and from the left visual centre. Any intracranial growth which impairs the action of the right tract or right visual centre causes diminished acuity of vision or blindness in the right half of each retina and in the corresponding left half of the visual field, while the reverse is the case in affections of the left tract or left visual centre which cause impaired or abolished vision in the left half of each retina and in the right half of the field of vision. It by no means follows, however, that all fibres of the tract or all portions of the sight centre must be involved at once, and where only part of them is affected we have defects which do not extend over the entire half of the field of vision, but which are characterized by being absolutely symmetrical on the two sides, producing, for example, a loss of the upper inner field of one eye with a corresponding defect in the upper outer field of the fellow eye. I have seen such visual defects, combined with very moderate and occasional headache, remain for several weeks the only symptoms of a tumor of the temporal lobe, followed later by convulsive seizures and partial hemiplegia. In this case, however, an interval of five months existed between the first appearance of the symmetrical defect in the fields of vision and the appearance of choked disk. Tumors so situated as to press on the optic nerves in front of the chiasm may give rise to more irregular defects in the fields of vision, but where the inner strands of each nerve are pressed on, we have loss of the temporal half of the field of vision in each eye. Pressure on the lower surface of the chiasm will produce loss of the upper halves of the fields of vision, while pressure on the upper surface might cause loss of the lower halves of the fields. So also symmetrical pressure on the outer borders of the chiasm might produce blindness of

the temporal halves of each retina and loss of the binocular fields of vision.

Wernicke's Symptom.—As is well known, the pupil contracts when strong light is thrown on it, by reason of a reflex impulse, transmitted from the second to the third pair of nerves in the vicinity of the quadrigeminal bodies. If now we throw a minute point of light on the blind half of the retina in a case of homonymous lateral hemianopia, we may or may not excite pupillary contraction. If the lesion of the optic fibres lies in the sight centre or in the strands running from it to the posterior eminences of the quadrigeminal bodies, the pupil will contract; while if the lesion is in advance of this point, we excite no pupillary reflex. This action, therefore, may become an important localizing symptom. In total blindness due to pressure on or disease of the optic nerves in front of the chiasm, of course, there is no pupillary reflex; while in the same condition from double lesions of the sight centres we have both reflex arcs intact and prompt pupillary reaction. Where the lesion is double, one situated in the sight centre of one side, and another on the strands of the optic nerves in advance of the quadrigeminal bodies on the other side, we may have absolute blindness with hemianopic pupillary reaction, because the reflex arc on the side of the cortical lesion is intact and is sufficient to produce pupillary contraction when light is thrown on the corresponding part of the retina.

Subjective Sensations.—Curious subjective sensations of light are at times met with in intracranial growths where the pressure is sufficient to stimulate some part of the intracranial visual apparatus without seriously impairing its functions.

Pressure on the Nerves at the Base of the Skull; Disease of the Cortex Cerebri.—Symptoms due to pressure on the third, fourth, fifth, and sixth nerves in their course at the base of the skull are so frequent and so familiar that it is not necessary to review them in detail from an ophthalmological stand-point. On the other hand, eye lesions due to tumors or degenerative areas in or near the cortical centres of these nerves are rare and have not happened to have come within the range of my own clinical experience, and I will not therefore tax the patience of the College by recapitulating a bibliography of cases not my own. I will only refer to the compilations of such reports published by Nothnagel, by Exner, by Knies, and to similar ones since made known by other laborers in this field.

THE SURGICAL TREATMENT OF INTRACRANIAL TUMORS.[1]

By William W. Keen, M.D.,

Philadelphia,

Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College.

Diagnosis.—The chief difficulty in the surgical treatment of intracranial tumors is unquestionably the lack as yet of means of making an absolutely exact diagnosis of the location, size, and number of such tumors. This has already been considered by other speakers in this debate, and I simply mention it in passing to emphasize the need. That minute, repeated, and exact experimentation upon animals as well as accurate clinical observation are both necessary to achieve this result is self-evident. No surgeon should attack a brain tumor until he has not only exhausted his own knowledge, but has also called to his help the ophthalmologist and the neurologist, whose observations are indispensable to a correct diagnosis.

Possibly the recent discovery of Röntgen may assist us. By this he has achieved what has heretofore been regarded as impossible,—namely, by means of the cathodic rays from Crookes's tubes of skiagraphing[2] internal parts of the body. Whether intracranial tumors will be also as permeable to these rays as are other soft parts of the body we do not yet know. If they are, it is possible that we may obtain very little additional information. It is, however, within not only the range of possibility, but it would seem to be of probability, that modifications of the method may be discovered by which we may be able to make such tumors visible. Until this discovery is further developed and made actually available, we must rely on the existing methods of cerebral localization.

Opening the Skull.—Possibly the proposition of Doyen may aid us very materially. This bold and able surgeon has recently proposed[3] to make an osteoplastic flap of the entire side of the skull ("temporary hemicraniotomy," as he terms it) by an extension of the well-known Wagner-Wolff method; the scalp forming a hinge on which the flap is turned over by fracturing the base of the bony flap. He has had also the courage of his convictions by operating already on four cases, of which two died and two recovered (one, a microcephalic, was greatly improved, the other, an epileptic, received only temporary

[1] Read in the discussion on Intracranial Tumors before the College of Physicians of Philadelphia, February 19, 1896.

[2] This term proposed by Dr. H. W. Cattell, is the proper Greek form of the mongrel word, shadowgraph, so often used by the newspapers.

[3] Revue de Chirurgie, 1895, p. 689.

benefit). In fact, he claims that "in future cerebral localization is useless in surgery and has only a physiological interest." Whether so extensive a temporary resection will stand the test of time and experience is somewhat doubtful, but should it do so, it will greatly simplify the treatment of tumors.

The mode of access to the tumor, if Doyen's method is not followed, is either by the ordinary method of trephining, using not less than an inch-and-a-half trephine, and making either a single or multiple trephine openings, which may be later connected by sawing or gnawing away the intervening bridges of bone, or by various methods for making the usual temporary osteoplastic resection.

Last summer, Mr. Horsley told me that he had returned to the use of an ordinary straight saw, cutting by means of this either three sides of a square and breaking the fourth, or sawing the fourth if the bone is to be removed entirely. Krause, instead of this, uses a circular saw (which is actuated by the surgical engine, like that which is used by the dentists), with this difference, that the handle of the saw is prolonged on the farther side, so that the saw can be held firmly by both hands. Others use the chisel in one of two ways. If an osteoplastic resection is to be done, the margins of the flap are cut through by such chisels as have been devised by Hartley, of New York, and by Pyle, of Canton, Ohio, or, secondly, by simply chiselling away all the bone over an area such as we wish to uncover. For this method Krause's gouge is the best. Another method is by such drills as those devised by Dr. Cryer, of this city, which are useful and effective, but require an expensive and not easily obtained extra heavy surgical engine. Whichever one of these processes is used requires a considerable amount of time, varying usually from fifteen to twenty-five minutes, and involves a moderate and sometimes a considerable loss of blood both from the scalp and the bone.

Operation in One or Two Stages.—The skull being opened, we may follow one of two courses. First, especially if the tumor is small, we may proceed with its extirpation and the closure of the wound, or, secondly (and this is especially applicable to tumors of large size), the first part of the operation may be terminated so soon as the brain is exposed and the hemorrhage checked. The wound is then temporarily closed, and the remainder of the operation is completed after the lapse of from three to six days. In other words, the tumor is attacked either by an operation in a single stage or an operation in two stages, as may be thought best. In large tumors I should certainly advise that the operation should be divided into two stages. Hemorrhage and shock, the two principal dangers in connection with the removal of cerebral tumors are thus minimized. It has,

however, the disadvantage of a possible infection. Two operations double the danger of infection, which is always a real one even in the hands of the most skilful. Weighing the probabilities of the two methods, however, in any large tumor, I should be distinctly disposed to operate in two stages rather than one.

Hemorrhage.—The control of hemorrhage is one of the difficult problems in connection with the removal of the cerebral tumors. The hemorrhage may arise either from the vessels of the dura, from the vessels and especially the veins of the brain itself, or, thirdly, from the sinuses. Hemorrhage from the diploë is so easily and effectively controlled by Horsley's antiseptic wax that it may be dismissed at once. For hemorrhage from the vessels of the meninges, the ligature is an efficient means of control. If the dura be cut and an artery bleeds, the cut end can be tied just as any other vessel. If it be necessary to ligate the vessel in its continuity in a dura unopened, though with torn vessels, it can be secured by passing a fine silk thread by means of the finest semicircular Hagedorn needle under the dura and around the vessel, care being taken by lifting the dura not to wound the underlying cerebral veins themselves.

For venous hemorrhage, the best method also, is the ligature. Rarely can the vessel be seized by the forceps and a ligature applied. The best method is again by the semicircular Hagedorn needle of suitable size, to pass a silk or catgut ligature through the cerebral tissue immediately below and around the vein, and then to tie the vessel by drawing with equal force on the two ends, not constricting the vessel with so much force in tying the knot as to tear through its weak walls. Sometimes packing and hot water (not over 110° F.) will aid greatly, especially in arresting any copious oozing. If the sinuses are torn or opened, the hemostatic forceps may be used to grasp the opening, if it is small, or, as I have done in one case, by three pairs of hemostatic forceps placed alongside of each other, the opening can be closed. The forceps may then be allowed to remain *in situ*, being enveloped, of course, by the dressing, and may be safely removed after three days. Should this method not be available, then the sinus should be plugged with iodoform gauze, the end of which protrudes through the scalp wound and can be safely removed again after three days. I have removed it even in twenty-four hours with success.

I would especially lay stress on the fact that any of the superficial sinuses of the brain may be exposed with almost perfect safety by gnawing away the bone over them after having separated the sinus gently from the skull by Horsley's dural separator or a probe. The point where the parietal veins enter the superior longitudinal sinus

should be avoided, if possible, as these are large vessels and a great amount of blood may be quickly lost. Hemorrhage from the sinuses, however, can be controlled again by packing, if not by the hemostatic forceps, or possibly by fine suture. In several cases I have thus exposed both the superior longitudinal and the lateral sinuses over a large part of their extent, and have opened the sigmoid portion of the lateral sinus on several occasions, and very easily controlled the hemorrhage by packing with a small strip of iodoform gauze.

In separating the dura from the brain, great care must be taken as we approach the superior longitudinal sinus. The veins of the brain widen into venous bays (the parasinoidal spaces) from which the hemorrhage will be often more profuse and alarming than from the sinus itself. One case I lost distinctly from the profuse hemorrhage from such a parasinoidal space, as I was not able quickly enough to control the bleeding by packing. The loss of blood from the cerebral veins is certainly more dangerous than the loss of an identical amount from other veins of the general system. It seems to drain the brain of blood so suddenly, and to make such an intense impression on the important nervous centres in the brain and cord as to be incompatible with life. Hence, when the finger gently introduced under the dura in the neighborhood of the superior longitudinal sinus perceives any attachment of the dura to the brain, we should be most careful to desist from any further separation of the parts, lest by doing so these large veins be torn and a parasinoidal space opened. On no consideration should this be done until the bone has been first widely gnawed away over the point of the adhesion to give ample room instantly to deal with possible hemorrhage.

Not uncommonly we can avoid a great deal of hemorrhage from the cerebral tissue by lifting the pia from the underlying convolutions so as to avoid the veins by working under them. The pia can be drawn out of the deep sulci in this manner with relative ease. Great care must, of course, be used in manipulations under such a displaced pia.

Removal of the Tumor.—The tumor, when discovered, may be removed either by the finger if it be well encapsulated, or if not, then by the knife, which should be held vertical to the surface so as to injure the adjacent cortex as little as possible. At the same time we must remember, especially in cases of sarcoma or its allies, that the infiltration of the cerebral tissue extends some distance beyond the tumor proper. Therefore, some of the apparently healthy brain tissue must be sacrificed for the purpose of safety. This may induce paralysis of important centres, but no such calamity can compare with the certainty of a return, and, therefore, of a future fatal

issue by a less thorough removal. Not uncommonly the scoop or curette may answer for the purpose of removing any remaining portions of the tumor after the main part has been removed.

Even in cases in which the tumor is too large to be removed with safety, a partial removal often gives very great relief, especially to the intolerable headache and other similar distressing symptoms, and this partial removal may be attempted not only once, but, as I have done it in one case, three times, and each time with great relief.

Should it be impossible to remove any of the tumor, the mere removal of the bone over the tumor will often give very great relief. The most remarkable case that I know of is one of Mr. Horsley's, in which, having experienced the comfort which followed the removal of half of the occipital bone, the patient later returned and begged him to remove the other half of the occiput, a wish which he gratified with a happy result.

Sometimes the dura is involved in the tumor, and must therefore be sacrificed. The danger of fungus cerebri is relatively small when the dura is closed after being opened, and especially if the brain substance itself has not been interfered with. In such cases, as I suggested a few years ago, the dura may be replaced by a bit of the pericranium. A piece of this, a little larger than is sufficient to make good the lost piece of dura, is cut entirely loose from the under surface of the flap of scalp and is sewed in place by a few interrupted sutures. In doing so, while I am not sure that it is needful (for I have not had the opportunity of making a post-mortem in any such case), I have always, on theoretical grounds, however, turned the pericranium upside-down, so that the osteogenetic surface should be external. If, then, any bone is developed from this osteogenetic surface, it grows away from the brain instead of into it. Such a closure of the dura is the most efficient means that I know of for the prevention of fungus cerebri, and thus avoids one of the most serious dangers which may follow such an operation. I have thus utilized the pericranium in two cases with success.

Drainage.—Excepting cases of abscess, gunshot wounds, intracranial hemorrhage, and cysts, it is my rule at present not to drain. Occasionally, on account of hemorrhage, it will be necessary to leave some iodoform gauze protruding from the wound and this acts as a drain. In such cases, however, I always insert a stitch in the scalp at the time of operation, so that as soon as the gauze is removed, the wound may be entirely closed, or, should there be need for drainage for twenty-four or forty-eight hours after removal of the gauze, I insert a small bit of gauze to keep open only the skin wound, and the stitch is tied as soon as the need has passed. If no drain be employed,

very frequently by the second or third day the flap will bulge considerably by reason of the accumulation of wound fluids under the scalp. If this is the case, and all the more if it is attended with headache or other pressure symptoms, I either insert a pair of forceps between two of the sutures, and thus give exit to the wound fluids, or sometimes cut a stitch for the purpose of gaining sufficient room for the evacuation of the fluid. The avoidance of a drain is not only important in securing a much earlier union of the edges of the wound, but also removes an occasional but very real danger of later infection.

Closure of the Opening in the Skull.—A month or more after the patient has entirely recovered from the operation, the question of closing the opening in the skull will naturally arise. Until this closure is effected (and sometimes it is best never to close it) I always direct the patient to wear a skull-cap, on the inside of which is sewn a bit of tin a little larger than the opening, the sewing being made possible by first covering the tin with some silk.

Sometimes the opening in the skull can be closed immediately by replacing the bone in one of two ways. Macewen first cut the piece of bone removed into a large number of small pieces, which he sprinkled over the opening. I think it much better, however, if it is intended to replace the bone at the primary operation, to replace it in bulk. I have now in about fifteen cases replaced a button of bone an inch and a half in diameter and the entire thickness of the skull, and in not a single case has the button lost its vitality. If this is to be done, however, the button of bone must be very carefully kept warm and moist, by placing it in a cup in a 1 : 2000 bichloride or some similar solution and placing this cup in a basin of water with a thermometer, so that the water shall be kept from 105° to 100° F.

The Later Closure of such an Opening.—For this König has adopted a very ingenious method. At any late time after the opening has been made, by accident or by a surgical operation, he has dissected away the scar over the opening and has then outlined an adjacent flap of the shape and somewhat larger in size than the original opening to permit of shrinkage. The flap is not separated from the skull, but under it he chiselled away the outer table in fragments, these fragments being left adherent to the under surface of the flap. By sliding the flap into place so as to cover the opening, he has in that manner closed some very large gaps. The place left bare by the transplanted flap is then covered in by skin-grafting by Thiersch's method. The most extensive application of this method that I know of was in a case of Schönborn,[1] in which there was an opening in the forehead six

[1] Beiträge Centralblatt für Chirurgie, 1891, p. 88.

or seven centimetres broad and twenty-five or twenty-six centimetres long. Two parallel transverse incisions were made, thus outlining a rectangular flap, the bases or ends of which on each side were not divided, but left continuous with the scalp. The scar over the opening having been resected, the outer table under this flap was then chiselled loose and the flap with its attached fragments of bone was slipped forward so as to fill the gap. The space left by the flap was then covered by Thiersch's skin graft. After four months, the bone having become solidified, as the patient was annoyed by the growth of hair on his forehead, Schönborn very ingeniously detached the scalp from the fragments of bone, which had been transplanted by the first operation and swung it back into place, having first, of course, removed the skin-grafts which he had placed there. The bone filling the original opening was then covered by skin grafting, so that the forehead was furnished with skin which had no growth of hair from it.

Such a bone-bearing flap can be placed directly upon the brain in spite of the ragged character of the bone fragments on its under surface. In a case of this kind Czerny[1] had the opportunity of examining such a bone-bearing flap at a second operation and found it perfectly smooth, and Titze[2] has covered in the brain itself by a similar operation.

I have recently adopted a little different method which seems to me to possess some advantages. A young man had severe and frequent epileptic attacks in consequence of a compound fracture from the kick of a horse. On November 21, 1890, I exposed the opening in the skull, removed a considerable amount of cystic connective tissue lying over the brain and endeavored to close the opening by transplanting a bit of bone from the skull of a lamb. The operation failed, however, since the lamb's bone underwent partial absorption, and finally the necrosed fragment had to be removed. The operation was followed by very great improvement in his epilepsy, the fits diminishing in frequency from one in about three weeks to two in a year. Within the last few months they have become more frequent, and on January 18, 1896, at the Orthopedic Hospital, I reopened the wound, removed a considerable amount of loose, spongy scar tissue, the interstices of which were filled with cerebro-spinal fluid. Then, to close the opening by bone, I chiselled away the adjacent outer table of the skull in quite large fragments, by means of a gouge and hammer. I found the gouge much better than a flat chisel. These fragments were then scattered over the surface of the brain so thickly

[1] Verhandlungen der deutschen Gesellschaft für Chirurgie, 1892.
[2] Archiv für klinische Chirurgie. 1893, XLV, 227.

as to leave no space between any two. When I say they were placed on the brain tissue, it is scarcely an exact statement, for they were rather placed upon the spongy scar tissue which filled up the entire opening. When he went home three weeks later, these fragments had become quite solidified, and I have every reason to believe that they will fill the opening in the skull by fusing into a true bony tissue. If so, it will be an efficient protection for his brain, and he can do without his bit of tin and the skull-cap.

One advantage of this method over König's, of an osteoplastic flap, is that one can obtain as much bone as is needed from the adjacent portions of the skull, and at the same time not produce puckering of the scalp from displacing the flap on its pedicle. Another is that it does away with the necessity of skin-grafting. A possible objection might be that the nourishment of such fragments of bone would be much better if left attached to the scalp. This, from my experience in replacing large pieces of bone so frequently, as well as in the present case, is not, I think, a valid objection.

Fränkel some time since proposed to fill the opening by a disinfected celluloid plate, a procedure which has been adopted in a number of instances with very good success. I regard either of the methods already described as very much better than Senn's decalcified ox-bone, which has failed in my hands, or the use of other foreign bodies.

The Future of Operations for Brain Tumors.—The future of the surgery of brain tumors is encouraging. While there are tumors which are not found, the percentage of these is diminishing from year to year, and even in some cases in which the tumor has not been found, the relief from pressure and especially from the agonizing headache has been very marked. Moreover, there are cases on record in which the tumor, while irremovable, has disappeared. Only last summer, I saw one case, operated on by Mr. Horsley, in which, from former experience, he expected such a result as likely to follow.

A large factor in the increasing success is that physicians who naturally see such cases first are appreciating the need for early operation, so soon as a definite diagnosis can be made and the location of the tumor can be determined. The only exception that I would make to such a rule are gummata, and even in these cases I should not be disposed to wait beyond two or three months, and possibly even not beyond the six weeks' limit proposed by Horsley.

Two-thirds of the cases submitted to operation recover, and while the later histories of many of them have not been published, yet we know that a considerable number have lived for several years and may be deemed definitely cured.

The very first brain tumor that I operated on, December 5, 1887,[1] is still alive, and after over eight years is in much better condition than at the time of operation, though still disabled by the atrophy of the optic nerve and more or less mental and physical disturbances, resulting from the tumor being present for twenty-four years before it was removed.

THE DIAGNOSIS OF INTRACRANIAL TUMORS.[2]

By Charles K. Mills, M.D.,

Professor of Mental Diseases and of Medical Jurisprudence in the University of Pennsylvania; Neurologist to the Philadelphia Hospital, etc.

It would be unwise to attempt to traverse the entire subject of diagnosis of brain tumors in the brief time allowed for this discussion, and I will therefore only direct attention to a few points in general and focal diagnosis.

The distinguished clinician and clinical teacher, John Hughes Bennett, was found after death to have a tumor the size of a hen's egg between the dura and the bone in the right temporal region. The growth had not been suspected during life, although a depression in the skull was present two inches above the ear at a point over the tumor, and had frequently been noted. Other cases have been reported in which few or no symptoms were present, or were not discovered during life. Doubtless in many of them unobtrusive phenomena were overlooked. Gliomata, and especially soft gliomata, when located in certain regions, such as the prefrontal lobe, or a lateral lobe of the cerebellum, sometimes give rise to so few of the general symptoms of brain-tumor that they pass altogether unrecognized, or are not suspected until very late in the progress of the disease. Tumors of rapid growth and firm consistence cause the most demonstrative symptoms.

In some cases the general symptoms of tumor of the brain are present and marked, but symptoms which accurately indicate its site or at least its full extension are wanting. These growths may even be situated in regions which should give rise to distinct focal manifestations, yet these are wanting. While usually very close scrutiny of the symptomatology will reveal some symptoms which will help out the focal diagnosis, in rare instances such symptoms are entirely

[1] American Journal of the Medical Sciences, October, 1888.

[2] Read in the discussion on Intracranial Tumors before the College of Physicians of Philadelphia, February 19, 1896.

absent. Starr has recorded from his own experience, and has collected from neurological literature, some striking cases of this kind. A most interesting case in this connection was studied by Drs. Sinkler and Lloyd and the writer in the Philadelphia Hospital, and has been put on record by Dr. Sinkler in the third volume of the Philadelphia Hospital Reports. The patient was an Italian boy, 15 years old, who had typical general symptoms of brain-tumor, and at the time of admission to the hospital was blind from secondary atrophy after double optic neuritis. Among the few symptoms noted during his stay in the hospital were bulimia, a little uncertainty of gait, lessening of the knee-jerks, slight retraction of the head, pain commonly referred to the occiput and neck, and pain above the clavicles and down the arms. The only cranial nerve symptoms were slight paresis of the right side of the face, sluggish reaction of the pupils, especially in the right eye, this being a trifle higher than its fellow, according to Dr. Oliver, who made a careful ocular and ophthalmoscopic examination. The autopsy showed on the left side and dorsal aspect of the pons and oblongata a soft gliomatous mass. This neoplasm involved the exits of the fifth, sixth, and seventh nerves, and to a considerable degree the regions of the nuclei of the root-fibres of these and other nerves. It extended so as to include the left pre-peduncle. It was limited cephalad by the postgeminum.

In several instances I have known the mistake to be made of confounding chronic endarteritis associated with nephritis with tumor of the brain. In one of these cases the propriety of operation at the site of an old scar was discussed. The patient died at the close of a series of uremic convulsions, and the autopsy showed Bright's disease with cardiac degeneration and widespread endarteritis. The correct diagnosis was finally made in this case by an examination of the urine, by a study of the accessible vessels, and by the discovery of a typical retinitis albuminurica which at first had been regarded as ordinary optic neuritis. Headache, vomiting, vertigo, and mental changes are not infrequently present in these nephritic cases, and the convulsions occasionally assume the Jacksonian type. Headache, as a rule, is not so severe. Youth would be in favor of tumor. De Schweinitz calls attention to the fact that brain tumor (usually cerebellar) may cause choked disk with a star-shaped figure of whitish color in the macular region, exactly simulating the appearances usually considered characteristic of a type of albuminuric retinitis, he having seen this in the Philadelphia Hospital and at the Infirmary for Nervous Diseases.

General symptoms, such as headache, papillitis, vertigo, vomiting, and convulsions, may tell us in no uncertain tones that a tumor is

present, and yet may throw no light upon its location or its pathological character. The mere absence of focal symptoms is not sufficient to enable the diagnosis of the location to be reached by exclusion; for a growth located in any one of three or four extensive regions of the brain may give rise to no focal symptoms, or, at least, to none which attract attention.

Brain tumors may grow in or from any of the physiological subdivisions of the cortex. Their symptoms must, therefore, be considered according as they affect the prefrontal, the motor, the postparietal, and the limbic, the occipital, supertemporal, midtemporal, uncinate, and preorbital regions, or their known subdivisions.

The recorded tumors of the prefrontal lobe, when carefully studied, show that they are usually accompanied by mental degradation or deterioration, and special perversions of the higher psychical faculties. These cases need most careful study, particular attention being given to the previous history as regards intellectual capacity. When the growth is small it may not be possible to detect any focal symptoms, and when it occupies the orbital surface few distinct symptoms may be present, unless it extends caudad so as to involve the olfactory bulb and chiasm, in which cases disorders of smell and sight may result. Bruns, from a study of four cases of his own, and of cases of Oppenheim, Bernhardt, and others, concludes that disturbances of equilibrium, identical with the so-called cerebellar ataxia, occur very frequently in tumors of the frontal lobes. This symptom he believes is much rarer in tumors of other parts of the brain and is absent with considerable regularity in tumors of the Rolandic region. In my own experience this symptom has not often been present.

In the central or Rolandic region, the chief focal symptoms are monospasm or unilateral convulsions, with increasing paralysis of varying types according to the location or extension of the lesion. The spasmodic symptoms usually precede the paralysis in these cases. The spasm is often local, and generally begins in the same part in different attacks, as in the fingers, toes, or the face on one side. Invasions of the hinder portion of the left third frontal convolution give motor aphasia and motor agraphia which may be partial or complete according to the extent of the lesion. In the postero-parietal and limbic regions disorders of muscular and cutaneous sensibility are sometimes present, and can be looked for with certainty when the lesions are deep or when they are bilateral. When the gyrus fornicatus or quadrate lobule are involved, in addition to anesthesia, local vasomotor and trophic phenomena are sometimes observed. Tumors of the anterior portion of the lateral occipital lobe, where it merges with the parietal lobe (angular region), give word blindness,

and if situated a little more posteriorly, apraxia or soul blindness. Lesions of the cuneus or calcarine region cause hemianopsia or quadrant or sector visual defects. When the tumor is situated in the superior temporal convolutions, partial or complete word deafness, and sometimes other affections of hearing are present; while tumors of the third temporal convolution, as in one of my own cases, may give verbal amnesia with or without other symptoms. Tumors when located in the fifth temporal convolution and its vicinity cause disorders of smell, while affections of taste are supposed to be caused by tumors and other lesions of the fourth temporal convolution; but this point is not yet settled.

The cerebellum is a frequent site of tumor. I do not believe it to be in any part a latent region, as is sometimes stated, and yet slowly growing gliomata, and probably some other forms of neoplasm, when they originate in the lateral lobes of the cerebellum, may for a long time not present recognizable symptoms. In tumors of this region some of the general symptoms of encephalic growths receive a special cerebellar stamp. The vomiting, vertigo, and optic neuritis, for example, are commonly of aggravated type; and symptoms referable to compression or invasion of the bulb or of the quadrigeminal body are frequently exhibited. The headache is often of occipital type, and nystagmus and other disorders of ocular movement are frequent.

Tumors of the callosum may give unilateral monoplegia, or hemiplegia, developing into bilateral monoplegia or hemiplegia, spasms irregularly bilateral, hebetude, slowness of speech, and irregular gait. The bilaterality of the symptoms will sometimes assist in the diagnosis. Dementia is frequent, and the general symptoms of encephalic tumor are nearly always present.

With reference to tumors of such structures as the pineal or pituitary bodies, it is of great importance to bear in mind their effects upon the neighboring parts. Symptoms referable to lesion of the chiasm, tuber cinereum, circle of Willis, and third ventricle are often present in pituitary tumor, while a growth involving the conarium may give symptoms showing the invasion of the thalamus, midbrain, and other parts.

With reference to tumors and other lesions of the projection fibres in the centrum ovale, one general diagnostic point of considerable importance is that the nearer the lesion is to the cortex the more likely it is to give rise to isolated or single symptoms, as to paralysis of a limb or portion of a limb, of the face or portion of the face, when the lesion cuts motor fasciculi; or to anesthesia limited to a segment of the limbs, trunk, or face, when the lesion severs sensory fibres;

while on the other hand, when the lesion is deeply situated near the internal capsule the complex of symptoms is more likely to constitute a hemiplegia or a hemianesthesia.

Subcortical motor symptoms will be produced by lesions situated in the white substance directly subjacent to the motor region,—in the irregularly wedge-shaped mass of fibres which pass from the postero-frontal and central convolutions in converging lines to the internal capsule. Irritative and destructive lesions in this region give a symptomatology which has some points of difference from that of the motor cortex. In favor of a cortical or epicortical lesion of the motor zone are localized clonic spasm, epileptic attacks beginning with local spasm followed by paralysis, early appearance of local cranial pain and tenderness and increased cranial temperature. In favor of a subcortical location of a tumor are local paresis or hemiparesis, followed by spasm, predominance of tonic spasm, normal cranial temperature, and absence, slight degree or very late appearance of local headache, and tenderness to percussion.

The possibility of multiple tumors should never be forgotten. They have been reported as occurring in any number from two to a score. Tumors most frequently multiple are the tubercular, the syphilitic, and the sarcomatous. Occasionally neoplasms show a tendency to be symmetrically located on the two sides of the brain. Multiple tumors may, of course, give phenomena referable to various parts of the brain, symptoms and signs so conflicting as to make diagnosis impossible, and even to confuse the expert as to general diagnosis. In other cases, however, one growth of large size, or in an active region, takes command of the situation, and leads clearly to its diagnosis in spite of other less significant tumors. In one of my cases not only was the presence of a large tumor of the motor cortex diagnosticated, but its exact location was indicated during life. Post-mortem examination, however, showed a smaller tumor at the inferior angle of the right lobe of the cerebellum, and also some basal meningitis with effusion which had not been suspected. When operation is in question, the possibility of the coexistence of another tumor should be carefully weighed. In one case three gummata were found by me,—one in the prefrontal region, another in the retrocentral fissure, and a third in the supramarginal convolution. The general symptoms of brain-tumor were present, but no localization was possible. Occasionally all the ventricles are invaded by sarcomatous growths.

REMARKS ON CERTAIN OCULAR PHENOMENA IN THEIR RELATION TO INTRACRANIAL GROWTHS.[1]

By George E. de Schweinitz, M.D.,

Philadelphia.

The ophthalmic side of the study of intracranial tumors has been so thoroughly reviewed by Dr. Norris that little in addition remains to be said; but I desire to call the attention of the Fellows of the College to a few points of interest, or, rather, to emphasize a few points to which reference has already been made by previous speakers,—

(1) *The Percentage of Cases of Intra-ocular Tumor in which Optic Neuritis occurs.*—Optic neuritis, in the widest acceptation of the term, as we have already heard, occurs in fully 90 per cent. of cases of intracranial growths, varying, according to the statistics, from 80 to 95 per cent. Perhaps this percentage would rise even higher if investigations were more frequently repeated, because a tumor may exist for a long time without causing papillitis, but later this symptom appears. Although neuritis may be long-continued, as Gowers pointed out, it is none the less a transient symptom, and it should not be forgotten, when searching for ophthalmoscopic evidence of intracranial disease, that the actual inflammation of the intra-ocular end of the optic nerve, or, in other words, the papillitis, may have passed away, with the exception of remnants in the form of spots of degeneration in the retina, filling in of the centre of the disk, or white tissue along the lines of the vessels.

(2) *The Distribution of Intracranial Tumors with Respect to the Existence of Optic Neuritis.*—The best analysis of cases of brain-tumor which throws light not only upon the frequency of optic neuritis, but upon its relative frequency, according to the situation of the neoplasms, is by Edmunds and Lawford.[2] From this paper the following table, which bears directly upon the question asked by Dr. Dercum, is quoted:

[1] Read in the discussion on Intracranial Tumors before the College of Physicians of Philadelphia, February 19, 1896.

[2] Transactions of the Ophthalmological Society of the United Kingdom, Vol. IV, p. 172.

No.	Locality of Tumor.	Optic Neuritis.	No Optic Neuritis.	Per cent. of Optic Neuritis.
1	Anterior frontal convolutions	8	2	80
2	Motor convolutions	....	12	
3	Occipital lobes	5	4	55·5
4	In hemispheres	6	4	60
5	Ganglia at base	17	3	85
6	Temporo-sphenoidal lobes	1	2	33·3
7	Cerebellum	20	3	86.9
8	Medulla and pons	3	6	33·3
9	Meningeal growths at motor convolutions	4	1	80
10	Meningeal growths elsewhere	4	2	66.6
	Total	68	39	

It will be seen, as these authors have pointed out, that there is a comparative immunity from optic neuritis of the cases of tumor in the cortical motor area, and that the frequency and severity of papillitis in cerebellar tumors is most marked. Furthermore, Edmunds and Lawford have grouped all of the cases towards the convexity of the brain,—that is, groups 1, 2, 3, 4, and 9,—and find that they yield 50 per cent. of optic neuritis, while those towards the base,—that is, groups 5, 6, 7, 8, and 10,—constituting 61 cases, give a percentage of 74 of optic neuritis.

Tumors of the medulla are said not to produce optic neuritis. If the growth involves the medulla and pons papillitis may be present, but when the growth is strictly localized in the medulla, inflammation of the intra-ocular tip of the optic nerve, if it occurs at all, must be extremely rare. According to Rath, who is quoted by Vossius,[1] tumors of the hypophysis do not cause optic neuritis. This is not according to my own experience in one case, but I am unable to prove the presence of hypophysis tumor, inasmuch as there was no autopsy. It was suspected from the clinical symptoms.

(3) *Character of the Fundus Changes with Special Reference to the Macula.*—Dr. Norris has thoroughly described the various phenomena which may be observed with the ophthalmoscope in cases of intracranial tumor, varying from a high grade of papillitis, the "choked disk" of the older writers, to minor degrees of neuritis which scarcely exceed the ordinary appearances of congestion, and I need add nothing to this subject except to refer to certain lesions in the macular region, which sometimes are so pronounced that they are singularly like the picture ordinarily considered characteristic of the retinitis of Bright's disease. An example of this kind is pictured in the accom-

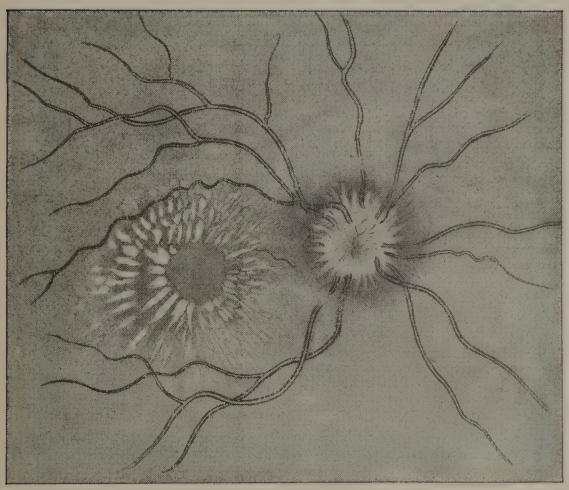
[1] Lehrbuch der Augenheilkunde, p. 592.

panying water color by Miss Margaretta Washington, which I have already exhibited to the Ophthalmic Section of the College, and which represents the right fundus oculi of a woman aged 25 years, with optic neuritis and star-shaped macular figure, but with normal kidney[1] sso far as clinical examination could determine. These macular changes formed part of the study on the alterations in the macula associated with retinal inflammation and edema, which Mr. Marcus Gunn presented to the Ophthalmological Congress in Edinburgh, in 1894. According to this author, Dr. James Taylor first called attention to these cases, and, moreover, to the fact that the macular figure was apt to occur when the neuritis was significant of a cerebellar tumor. In a case recently seen in the Infirmary for Nervous Diseases, and studied by Dr. A. G. Thomson, the simulation of the retinitis of Bright's disease was so exact that every one who examined the case with the ophthalmoscope at once took for granted that nephritis was present, although the kidneys were entirely normal, and the case was one, I believe, of cerebellar tumor, although—and if I am wrong Dr. Thomson will correct me—no autopsy was made.

In *résumé* I may quote what I had previously written on this subject, a sentence to which Dr. Mills has referred: "Double papillitis is highly significant of intracranial disease, especially tumor or basilar meningitis, but it is not a pathognomonic sign. Other causes, prominently Bright's disease, gout, and certain poisons, which, indeed, may or may not be associated with the intracranial lesion, must be excluded. Conversely, brain tumor, usually cerebellar, may cause choked disk with the appearances usually considered characteristic of a type of albuminuric retinitis.

(4) *Second Attacks of Optic Neuritis.*—Dr. Norris has referred to relapses of optic neuritis, and especially to the fact that in these days of intracranial surgery the opportunity for studying such relapses has been greater. I have seen one typical case, and, in conjunction with Dr. A. G. Thomson, have recorded it before this College. Briefly, it is as follows: Focal epilepsy, creating the suspicion of intracranial tumor. At first there were no abnormal ocular symptoms, except passive hyperemia of the retinal circulation and infiltration of the lymph-sheaths. One year later, the epilepsy continuing, there was distinct congestion of the optic disk, which in a few months, while the patient was under the observation of Dr. Wallace, and no doubt also of Dr. Norris, in the Hospital of the University of Pennsylvania, developed into optic neuritis. On the patient's return to the Orthopedic Hospital, two years after the primary examination, this was evi-

[1] Nervous Diseases by American Authors, edited by Dr. F. X. Dercum, p. 758.



Right fundus oculi of a woman aged twenty-five years; optic neuritis and star-shaped macular figure simulating appearances seen in albuminuric retinitis. Kidneys normal.

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dent as a well-marked papillitis, of the type ordinarily called "choked disk." From this time on, with the exception of decided increase in the papillitis and depreciation of vision in the left eye, the ocular conditions remained unchanged until Dr. Keen performed the operation of trephining. Between three and four months subsequent to the operation, the ophthalmoscopic appearances of subsiding neuritis began, and eight months after the operation there was fully-developed post-neuritic atrophy, with preservation of good vision in the right eye and very moderate (one-tenth of normal) in the left. Nearly one year after this date, the patient reappeared with the return of headache, vomiting, and other symptoms of intracranial disease, from which he had previously been free, totally blind, and revealing to the ophthalmoscope well-marked double optic neuritis, the apex of the swelling being as high—namely, 6 D.—as it had ever been in the primary attack.

The appearances of the left fundus oculi at the time of the relapse of the optic neuritis are depicted in the water-color which I exhibit. This second attack of optic neuritis has disappeared, the disks are now entirely atrophic and flat, and the patient totally blind.

(5) *The Visual Field Phenomena.*—Dr. Norris has described the most prominent visual field phenomena, and has particularly referred to that most important localizing sign,—hemianopsia. I would like to emphasize two important points in regard to this symptom: First, that hemianopsia, although usually a direct symptom, may sometimes be an indirect sign of disease, as the result of what the Germans called "fernwirkung," or, in other words, that it may be a distant symptom. (Swanzy). Second, that hemianopsia may accurately localize a lesion within the cranium when that lesion is itself insignificant and unimportant, the main and essential disease being quiescent. Perhaps the best example of this has been recorded by Dr. H. C. Wood, in his study of a case of large tumor occupying the second and third temporal and encroaching upon the fourth convolution, which gave no localizing sign of its presence; while a lesion in the cuneal region (a small hemorrhagic cyst) was inferred from a study of the case, chiefly the visual phenomena, and laid bare by the surgeon's trephine.[1]

In closing, I desire to say a word in regard to the description of the ophthalmoscopic lesions which are found in cases of suspected intracranial disease, and to deprecate the unfortunate admission in

[1] This case is recorded in full by Dr. H. C. Wood, in the UNIVERSITY MEDICAL MAGAZINE, Vol. 1, p. 383. The late Dr. Agnew performed the operation of trephining, and the surgical aspects of Dr. Wood's case are discussed by Dr. J. William White in the same number of the MAGAZINE.

many reports of language which is too vague to be of much value. It does not avail a great deal to speak of "full veins," "hazy retina," "cloudy disks," etc., unless the report concludes with a definite statement as to the probable significance of these appearances, in so far as our present knowledge permits. When reports are thus vaguely written, it becomes exceedingly difficult to gather accurate statistics, which we so much need, as to when the fundus-changes first appear. I am far from desiring any lack of thoroughness in examination or in description. I contend only for a phraseology which will enable a statistician to separate those groups in which there is evident neuritis, retinitis, perivasculitis, etc., from those in which the symptoms are common to a number of ocular conditions having no connection with intracranial disorders.

BRAIN TUMORS, OTITIC BRAIN ABSCESSES, AND AURAL VERTIGO.[1]

By Charles H. Burnett, M.D.,

Philadelphia.

The aurist is sometimes called upon to differentiate between brain tumors and otitic brain abscesses and between brain tumors and aural vertigo, sometimes called Ménière's disease. Tumors of the brain have been mistaken for otitic cerebral abscesses. Two cases of this kind have been reported recently, one by Schwartze,[2] and another by Passow.[3]

In the first case the tumor lay in the cerebellum, and in the second, in the quadrigeminal body. The presence of a simultaneous chronic purulency of the middle ear led to the erroneous diagnosis in both cases, of an otitic abscess in the temporal lobe on the side of the affected ear and trepanation was performed in both instances for the relief of an otitic abscess in this part of the brain. Death ensued in both instances; eight days after the operation in Schwartze's case, and during the operation, from chloroform, in Passow's case.

In the first-mentioned case, a boy of 12 years, the brain symptoms—viz., headache, nausea, vomiting, *double optic neuritis*, partial oculo-motor paralysis, and finally, repeated attacks of paresis of the

[1] Read in the discussion on Intracranial Tumors before the College of Physicians of Philadelphia, February 19, 1896.

[2] Archiv für Ohrenheilkunde, April, 1895.

[3] Deutsche medicinische Wochenschrift, October 31, 1895.

right half of the body, the side opposite the affected ear—were, as Schwartze frankly states, symptoms of the presence of a cerebellar tumor rather than a cerebral abscess.

He was apparently misled in his diagnosis by the subnormal temperature, which prevailed in his patient for a long time before the operation, and also by the presence of a coincident chronic purulent otitis media. But the *long duration* of the cerebral symptoms, six months before the time of the operation, and the *double optic neuritis* should have inclined him to diagnose a cerebellar rather than a cerebral disorder, and that a *tumor* rather than an *abscess* pressing forward upon the ventricles, transverse and cavernous sinuses, and the ophthalmic veins. Abscess of the brain is generally too rapid in its course to occasion even *unilateral* optic neuritis, much less *double optic neuritis*. The tumor was a large glio-sarcoma, occupying one-half of the medial part of the cerebellum.

In the second case, a man of 30 years, the one reported by Passow, again we find a history of long duration—nearly ten years—of most of the cerebral symptoms, and also a simultaneous or coincident chronic purulent otitis media, on one side, which latter apparently misled Passow also into diagnosing an otogenous abscess in the temporal lobe on the side of the affected ear.

The cerebral symptoms consisted in increasing frequency and severity of headache, with attacks of nausea and vomiting during the last *four* years of the disease, and finally choked disk on both sides and a tendency to horizontal nystagmus upon looking outward. The left pupil on the side of the *affected ear* was the *wider*, as in Schwartze's case. Now, as in otitic brain abscess, the wider pupil is generally on the side unaffected with otogenous cerebral abscess, this symptom was in favor of the *absence* of an abscess in the temporal lobes in these two cases, at least on the side of the wider pupil, which was the side selected for operation in both instances.

In Passow's case the vision was good, the intellect dull, and, upon sitting up, the patient tended to fall backward. Trephining for the relief of an otitic abscess in the temporal lobe was begun, but the patient died during the operation from the chloroform narcosis, and Passow takes occasion to observe that there is a probability that in intracranial lesions the patient is especially likely to succumb to chloroform, and to corroborate this he cites two cases, occurring recently in the practice of Braun, of Königsberg, in which death ensued from chloroform during operation, for the relief of intracranial lesions. In Passow's case the autopsy revealed a glio-sarcoma of the quadrigeminal body.

I have had but one opportunity of observing and verifying by

autopsy a case of tumor, or tumors of the brain, which presented also aural symptoms, and at first led to the supposition that the case might be one of ambilateral *chronic* aural catarrh and aural vertigo. There was no purulency in either ear. This case occurred in the Pennsylvania Hospital in 1874, during the service of the late Dr. James H. Hutchinson, through whose kindness I was permitted to see the case a short time before death. If I remember correctly, it was diagnosed as a case of tumor of the brain. The patient was an unmarried woman, 42 years old, who began to complain, a year before her admission to the hospital, of pain in her forehead and vertex increasing in severity, increasing deafness and tinnitus in both ears, unsteadiness in gait, pain and impairment of sensation in her legs, vertigo, and occasional nausea. In the course of six months all these symptoms became more pronounced, and *double optic neuritis set in* (worse on the left side). There then ensued total loss of muscular power, failure of intellect, difficulty of swallowing, prolapse of the muscles of the eyeballs, cyanosis of the face, involuntary evacuation of the urine, increased frequency of pulse, and death, preceded a few hours by a temperature of 106° F.

There was no operation, nor thought of any. The autopsy revealed *multiple brain tumors*, as follows:

On the left side, behind the petrous bone, below the tentorium, there was found a large, round tumor two inches in diameter (*cystic*), pressing upon the left hemisphere of the cerebellum, left half of the pons, and the left crus cerebri. It extended into the left porus acusticus internus, destroying by pressure the auditory nerve and its expansions in the labyrinth.

On the right side there was a smaller tumor (*fibrous*) adherent to the posterior surface of the temporal bone, extending inward through the porus acusticus internus to the labyrinth, where it had destroyed all the nerve structures as revealed by the microscope.

From these three cases we may conclude that a *long duration* of the brain symptoms, a year or more, and, finally, *double otitic neuritis* are symptoms of tumor of the cerebellum or vicinity, in the posterior fossa of the skull, rather than of abscess in the temporal lobe of the brain.

Double optic neuritis, or choked disk, may be a symptom of *otitic cerebellar abscess:* but then there would be other symptoms pointing to the existence of intracranial abscess of otitic origin.[1]

In making a differential diagnosis between aural vertigo, of tympanic origin (sometimes erroneously called Ménière's disease), and a

[1] Hansburg, Archives of Otology, January, 1895; and Risler, Journal of Nervous and Mental Diseases, August, 1894.

brain tumor, it must be borne in mind that in ear vertigo there are found always deafness and tinnitus, with objective symptoms of chronic catarrh of the middle ear, and at times demonstrable ankylosis of the malleus and other ossicles. The vertigo is nearly always paroxysmal, excepting in very chronic cases, when there may be a constant disturbance in equilibrium. However, there is entire absence of severe headache and paretic symptoms, even in the worst forms of ear-vertigo.

In brain tumors, even if there be coincident tinnitus and deafness, the vertiginous tendency is *constant* and the headache is *continuous* and *severe*, paretic symptoms set in soon, and increase in severity, and double optic neuritis at last makes its appearance, especially if the lesion is in the region of the cerebellum, or at any point interfering with the circulation of the cavernous sinuses and ophthalmic veins. If the vertigo is shown to be of tympanic origin, and therefore due to retraction and ankylosis of the ossicles, with consequent impaction of the stapes in the oval window, and reflex irritation of the cerebellum, liberation of the stapes by surgical removal of the incus, *the membrana and malleus being left in position*, will permanently relieve the aural vertigo in most cases, according to my experience, based upon *twenty-three* such operations within the last eight year.

DISCUSSION.

Dr. J. Hendrie Lloyd: I have very few statements to offer about brain-tumors that are in any way novel. The whole subject has been so thoroughly gone over in the past that very little remains to be said. It has seemed to me best to refer to a few points that have arisen in my own work. In quite an extensive clinical experience with brain-tumors a few points have come up time and again which seem to me of sufficient importance to be introduced here to-night in a discussion of this kind.

I shall speak first with reference especially to diagnosis, as this bears directly upon the practical subject of the treatment of these cases. Of course, a great many brain-tumors are beyond the aid of either the therapeutist or the surgeon, and unfortunately such cases offer usually problems merely for scientific curiosity. But there are some, and a very important class, of these neoplasms which do offer problems for both the surgeon and the therapeutist. Within a few years I have met with two or three instances in which brain-tumors have not been diagnosed, although they were located where they could very readily have been taken out by the surgeon. I think in some cases the simpler the diagnosis of brain-tumors the more misleading on some accounts it may be. This is true especially in those cases in which the neoplasm is entirely in the motor cortex. I suppose that there is no place where brain-tumors are watched for more carefully than at Blockley, and yet all of these cases occurred at Blockley. These patients with neoplasms in the motor regions, giving all the classical symptoms, were practically overlooked, and the

operation was only performed on the post-mortem table. The reason, I take it, for this is that the very simplicity of the case on some accounts misleads the observer. These cases sometimes resemble strongly an ordinary case of hemiplegia (two cases that I can recall now had hemiplegia as a distinct symptom), and where, as in Blockley, we have such a large number of hemiplegics, hemiplegia does not offer much novelty. In this way an observer may be misled to rather neglect the study of ordinary hemiplegia, when it occurs as a symptom of brain-tumor.

These cases in fact strongly resemble sometimes cases of ordinary hemiplegia from hemorrhage, or embolus in the basal ganglia. In cases of tumors of the vault some of the classical symptoms of brain-tumors may be absent, as optic atrophy, and vertigo and vomiting especially.

In reference to diagnosis, I think the most important symptom is the onset of convulsions. The ordinary focal epilepsy, beginning in a limited muscle group, should usually put us on our guard; and yet I do not feel quite so much confidence in these classical tests as I formerly did, because I have seen them put in operation several times and I have been disappointed. All of us who are on duty at Blockley will probably recall very distinctly the case of a man in my wards, named Smith, operated on by Dr. Deaver, who had the symptoms of a strikingly localized lesion, probably tumor in the motor regions. Two operations have been performed and no tumor has been found, and the man is still going about having some mild attacks of focal epilepsy. For the last two or three years he has been better, probably because Dr. Deaver took out some of his motor area.

As to the onset of convulsions. It occasionally happens in these cases in which the paralysis takes on a hemiplegic type that convulsions are not an early symptom. The onset of focal epilepsy does not always reassure me that we have a distinct focal lesion that can be reached. We have two cases now in the Philadelphia Hospital of this very type. One I saw yesterday; the patient is now under the care of Dr. Mills. He has distinct focal epilepsy of the face and arm and also paralysis of these parts. I have not had an opportunity to study the case very carefully, but I think Dr. Mills has come to the conclusion that the patient has brain-tumor. Still, while the history points to brain-tumors, certainly it is not clear enough to warrant a positive diagnosis. There may be a localized meningitis instead.

Only last week I had another case in a man who has within three months taken on symptoms of focal epilepsy, involving the face and left arm. In this case there have been from the beginning optic atrophy and severe headache limited to one side. This brings up a second question from the diagnostic and therapeutic standpoint,—viz., the differentiation of brain-tumor from early syphilitic disease.

Now, I think that this, in many cases, is a very grave question. If there is anything in the antisyphilitic treatment of brain lesions we can only hope to get beneficial effect by very early and very prompt action. The diagnosis, for instance, of an early beginning syphilitic meningo-encephalitis which may lead in time to gummatous tumor is of very great importance if we are to derive any benefit from the treatment. I must confess, however, that with the ordinary antisyphilitic treatment in many of these, as well as in cord lesions, I have been disappointed. The distinction of an early focal syphilitic lesion, which, in time, may form a syphilitic gumma, and its prompt eradication by antisyphilitic treatment are by no means as easy and common achievments as one might be led to imagine from some of the literature. I feel, from careful study of late reports, that really we ought to give the hypodermic treatment with mercury a more thorough test, especially in these cases of grave nerve lesion. Our Blockley wards present us very many grave nerve lesions, beginning in syphilitic patients, in whom we have every reason to believe

that these lesions are syphilitic, yet the ordinary treatment with iodide of potash and inunction of mercury does not give satisfactory results. We should endeavor to bring to bear upon these patients the action of mercury in the promptest possible way. The reports of some European observers seem to prove that the hypodermic use of mercury or gray oil does give prompter results upon the nerve-lesions, as well as upon lesions of the eye and other vital tissues of the body, than those that are obtained by inunction.

A French surgeon, at the recent meeting at Lyons, claimed that in cases in which mercury is given by the mouth in ordinary pill form it very frequently does not appear at all in the urine; when it is given by inunction it may appear in the urine in a week or ten days; when given hypodermically it nearly always appears in the urine in the first twenty-four hours; this is a physiological test, and it seems to prove that the absorption of the drug, when given under the skin, is much more prompt than by other methods. This is a little apart from the subject, excepting in so far as it refers to the early growth and treatment of syphilitic lesions which in time form neoplasms.

For tumors about the base of the brain and in the cerebellar region little can be done. In a case under observation at present, however, the question of trephining has arisen. The man has symptoms of cerebellar tumor, as forced movements to one side, optic atrophy, vertigo, vomiting, and occipital headache, with abolished knee-jerks. The motive for trephining consists in the fact that a few years ago the patient had a severe injury in the occipital region and now has great irregularity over the occipital bone, as though he might have had a fracture. Considering the location of the injury and the probable location of the tumor, the prospect for success is not encouraging, and the dangers are very great.

Finally, a word about multiple tumors of the brain. The possibility of multiple tumors should never be ignored, especially when an operation is intended. In a recent case in which I conducted the autopsy, I found four distinct tumors. A tumor was in either hemisphere, in the ascending convolutions bordering the fissure of Rolando; a third was near the angular gyrus on the left side; and a fourth, smaller and more recent, was in still another locality. They confused the diagnosis very much, and, of course, they would seriously interfere with successful surgical treatment.

Dr. F. X. Dercum: In regard to the first point made by Dr. Mills, that gliomata every now and then fail to give rise to symptoms, suggests to my mind that there is another form of brain tumor which is also apt to be present without symptoms,—that is, cholesteatoma. I have seen one case where such a tumor was present involving the ascending frontal and posterior portion of the second frontal convolution, without giving rise to any focal symptoms whatever. There were present in this case simply general symptoms of brain-tumor, headache, optic neuritis, the latter being of rather high grade and plus knee-jerks.

Regarding the affections that complicate the diagnosis of brain-tumor, there are several forms of meningitis which render the diagnosis every now and then difficult, and especially (as Quincke pointed out some years ago) is this the case with *serous meningitis*. This is accompanied by constant headache, though the patient is often able to be around and about just as in brain-tumor; there are no focal convulsions or other localizing symptoms, but optic neuritis is present just as in brain-tumor. There is a very important point and I remember to have seen one such case.

The occurrence of focal convulsions in Bright's disease has been established by numbers of observations made both abroad and in this country, and it is perfectly

true, as Dr. Mills has stated, that these convulsions may be *strictly* focal in character. While we are upon the subject of convulsions there is another and very important point to remember, and one which my own experience has demonstrated to be a fact on several occasions. It is that in brain-tumor the convulsions are not necessarily focal, but may be general,—that is, the epilepsy may simulate essential epilepsy, and unless we are careful to examine as to headache and to make tests as to localized weakness, changes in knee-jerk, and so on, we may fall into error. We should be very careful in making the diagnosis of ordinary epilepsy to eliminate this class of convulsions.

In regard to tumor of the frontal lobe, though I have seen a number of such cases, I have never observed typical ataxia in any of them. In abscess of the frontal lobe, I have seen boulimia, though I have noted this symptom in tumor. I doubt, however, whether this fact would serve us in distinguishing between the two lesions. Boulimia we may also see in cerebellar tumor.

With regard to the irregularities often revealed by the hemiplegia of brain-tumor, mentioned by Dr. Mills, that is a point of very great importance. We must remember, however, that there are certain forms of hemiplegia due to hemorrhage or softening, which do not conform to the ordinary type. Thus, we every now and then see the so-called leg-sensory type, in which the palsy is more pronounced in the leg, the case being at the same time complicated with very marked hemi-anesthesia. However, even here various facts enable us to make the distinction. The hemiplegia in brain tumor comes on gradually, not suddenly. Very frequently anesthesia makes its appearance first, which is always a suspicious symptom. We must not be misled by the fact that every now and then we have localized bleedings about the tumor, giving rise to pseudo-apoplectic attacks. Here the diagnosis depends upon the accuracy of the detailed study of the case.

In regard to the interesting point alluded to by Dr. Lloyd as to the diagnosis between syphilis and brain tumor, there is one cardinal fact to bear in mind,—syphilis of the brain by itself does not, in my experience, exist.

Syphilis is always a cerebro-spinal disease, and if we carefully look for cord symptoms, we will have no difficulty in finding them, although brain symptoms may overshadow everything else. If we get cord symptoms in a given case it will enable us to make a decision at once. In regard to the treatment of syphilis by the hypodermic method, my own experience has not inclined me to its use. In a number of cases in which I have tried this method I failed to get decisive results, and when I resorted to the old method of inunction I got very marked and very rapid results. What the explanation is I do not know, unless it be that the mercury when used by the skin makes a massive and very gradual impression,—that is, the drug is retained long enough to enable it to exert its peculiar effect upon the specific exudation.

In speaking of cerebellar tumor we should remember several points of very great importance,—*e.g.*, the knee-jerks may differ at various periods of the history of the same case. We frequently find the knee-jerks in cerebellar tumor. Later on in the same case we may find that knee-jerks are lessened or absolutely gone. Recently studies by Mayer and by Sinkler have made it probable that in at least some of these cases there is a tract degeneration taking place in the cord, possibly in some way connected with the lesion in the cerebellum. In a case which I myself very closely studied no such change could be detected, and perhaps the loss of the knee-jerk can in this instance be explained by the extensive destruction of the cerebellum. In other cases, again, an absent knee-jerk may be replaced by one that is exaggerated. Here the explanation may lie in an irritation of the cerebral motor tracts in the pons or medulla.

There are two other important symptoms in cerebellar tumors, loss of sight and partial or complete loss of hearing. The loss of vision may be due to pressure upon the anterior quadrigeminal bodies or upon the chiasm by the distended floor of a dropsical third ventricle. The loss of hearing may be explained by pressure upon the auditory nuclei or auditory nerves, but as I believe was the case in one of my own patients, it may be due to pressure upon the posterior quadrigeminal bodies; these appear to bear the same relation to the auditory tract as the anterior quadrigeminal bodies bear to the visual tract.

The question of the diagnosis of abscess from tumor is exceedingly interesting, but opens up so extensive a field that I cannot discuss it here. The question of diagnosis from aneurism is very interesting, but time will prevent my entering into it.

Headache is one of the most common symptoms in brain-tumor, but every now and then it is absent. Every now and then subcortical growths fail to give rise to headache, while in other cases they give rise to very intense headache. Headache probably depends at times upon the situation of the growth. Of course, if the growth impinges upon the dura, we can understand why pain is present.

Further, in brain-tumor headache is not necessarily continuous from day to day. I remember very well a case I studied some years ago for many months, in which variable headache was present; some days it was very bad, sometimes not present at all, and yet when this man came to autopsy two enormous hematomata of the dura were found. With this enormous increase within the cranium, an increase of bulk, and concomitant increase of pressure, the headache had been anything but constant.

Dr. William Thomson: The connection and significance of double optic neuritis with tumors of the brain have been so well set forth by the previous speakers that I will content myself by presenting to the College this microphoto graph, taken by Dr. Wallace, of a preparation made by me of a characteristic choked disk, from the eye of a young man who died of a tumor pressing upon the cerebellum.

The full account of the case can be found in the *American Journal of the Medical Sciences* for July, 1873, and has for us the historical interest that it gives the details of the first case in which the ophthalmoscope was relied upon to aid and confirm the diagnosis of brain tumor in this city.

The patient was under the care of the late Dr. Keating; Dr. Mitchell was in consultation, and the late Dr. Dyer made the examination with the ophthalmoscope, and observed, measured, and described the appearances of the optic papillæ.

At the autopsy I was able to demonstrate the swollen appearance of the disk, and later on to make and preserve a section of it, which is represented in the photograph. This case occurred in 1872, and is an evidence of the use of the mirror at that time in the treatment of nervous diseases. No one then ever hoped to see the day when the surgeons would venture to remove such tumors. I now gladly make way for the remarks on the aspects of brain tumors of our daring operators.

Dr. J. M. Da Costa: I have listened with great interest to the debate. There are many matters connected with the distinction of tumors from general morbid states that could be, had time permitted, much more fully dwelt upon. The similarity to certain forms of Bright's disease, clearly brought out to-night, is very valuable.

The reason why so little has been said concerning cerebral localization is probably because there is nothing in cerebral localization of tumor different from localization of any other lesion. The recognition of the kind of morbid growth is never very satisfactory, generally only a matter of surmise.

Several points of individual experience come to my mind with reference to general clinical facts; among them that there are certain cases of slow poisoning which give rise to choked disk and appearances of tumor. It is known that lead-poisoning may do this, and I have noticed that people who take chloral to excess have choked disk, and that chloral-eaters will have symptoms of brain-tumor. The first case that taught me this was seen several times, and the eye examinations made by one of our most distinguished ophthalmic surgeons, who expressed no doubt of the nature of the lesion. The diagnosis of brain-tumor was made, based on the eye appearances, the steady headache, and some uncertainty of gait. Finally, the true cause was discovered by finding chloral-bottles in the room, the patient was carefully watched, the chloral habit treated, and perfect recovery ensued.

Another point is this, that in the relief of headache in brain-tumors, sometimes very large doses of iodide of potassium will do good, and this probably because it modifies the surrounding inflammation rather than from any direct action on the tumor. Moreover, it does not follow because a case improves under treatment of the kind that it is a gummous tumor we are dealing with, because that whether from secondary inflammation being modified or not, the symptoms being strikingly relieved may be witnessed in any form of morbid growth. This, too, I know from experience and in cases that have been followed out finally to the autopsy.

Dr. C. K. Mills: Much more might have been said about the focal symptomatology and diagnosis of tumors. Dr. Dercum spoke about the diagnosis of subcortical growths in the motor region, and referred to the question of the existence of tonic spastic conditions under these conditions. I believe that there is a certain amount of value in this symptom. I am sorry that more attention was not paid to the general diagnosis of brain tumor and to the diagnosis of tumor from such conditions as hysteria, neurasthenia, and general paralysis of the insane. These are among the diseases which present special difficulties in diagnosis at times. The concurrence of hysterical manifestations with the symptoms of brain tumor is so frequent that the diagnosis is very often not correctly made. Here the ophthalmoscope is often the method of differentiating.

Induced Labor in a Case of Previous Cesarean Section.

Schlaepfer has reported the case of a woman, 27 years old, who was delivered by Cesarean section of a dead child at the termination of her first pregnancy. Conceiving again a year and a half later, and desirous of having a child, and presenting a simple flat pelvis of the first degree, it was concluded to induce premature labor during the ninth month. This was with some difficulty effected after the introduction of a bougie, and subsequently of a water-bag, the child being delivered after version. The infant was asphyxiated, but was resuscitated after some manipulation. The placenta came away after expression; the uterus contracted well and presented a depression upon its anterior surface, supposedly corresponding with the cicatrix of the previous section. This depression had not before been appreciable, nor was it so subsequently.—*Centralblatt für Gynäkologie.*

CLINICAL DEPARTMENT.

INFIRMARY FOR NERVOUS DISEASES.

[Clinic of S. Weir Mitchell, M.D. Reported by H. P. Boyer, M.D.]

TRIONAL IN EPILEPSY.

Early in 1894, Dr. S. Weir Mitchell began the use of trional in the treatment of epilepsy. Since this time, at his request, his colleagues, Dr. Sinkler and Dr. Lewis, have been employing it in many of the cases of epilepsy coming under their care at the clinics of the Infirmary for Nervous Diseases. The results obtained from this treatment have been such that it has been thought well to report them.

In most instances where trional was used the cases were in some way benefited. Either the number of attacks was diminished, their severity lessened, or the general physical condition of the patient improved. In nearly every epileptic who seeks advice at this clinic bromides have been long and assiduously employed. And since these drugs have become almost household remedies, we see numerous instances of excessive bromic poisoning. There are certain epileptics, as Dr. Mitchell pointed out years ago, which become at once worse under bromides; the fits increasing in number or in severity. This seems to be due to the way in which the bromides disturb digestion in a limited number of people. But this by no means explains the noxious effect of bromides in other cases in which no gastric disturbance is met with.

More rarely all bromides give rise, as Echeverria first pointed out, to homicidal or suicidal conditions. Of the truth of this observation Dr. Mitchell's experience affords ample evidence.

There are, therefore, many reasons why it may be desirable to lessen, abandon, or for a time cease to use these potent salts. Then it becomes necessary to have available substitutes, upon which Dr. Hinsdale reported the experience of this clinic in the *International Medical Magazine*, 1892.

Early in 1894, Dr. Mitchell, pleased with the use of trional in private practice, began to use it in this out-patient service. The results and the drawbacks to its use are briefly stated in the following cases:

Case I.—H. C., male, 15 years of age, came to the clinic with the history of having had general convulsions since the age of 7 years. He at first had only one attack in a week, but as he grew older they became more frequent. When he reported for treatment he had been having one or two seizures daily, with an occasional week in which only three or four convulsions occurred. This was while he was taking bromides which he had received elsewhere. He was at once placed on trional, five grains twice daily. During the next four weeks he had only one severe and four slight attacks. When the trional was now increased to five grains three times daily, he had in the next six weeks only three attacks. With the addition of five grains of phenacetin three times daily to the trional, he had three attacks in the next two weeks. Thirty grains of ammonium bromide with seven grains of antipyrin seemed not to have so good an effect, for while taking this for a month, he had from one to two attacks daily. On returning to the trional and giving eight grains three times daily, the attacks were reduced to ten in the next six weeks.

He was better physically while taking the trional, and did not complain at any time of any bad effect.

Case II.—A. F., female, aged 21 years, had her first convulsion at one year of age. When she came to the hospital she was having seizures, general in character, once or twice a month. On fifteen grains of ammonium bromide and five grains of antipyrin, three times daily, she had eight convulsions in seventeen weeks. On seven grains of trional, three times daily, she did not have any attack in the next eight weeks, which was up to the time of reporting.

Case III.—E. J., female, aged 19 years, who has an epileptic brother, has a history of general convulsions from childhood. At present she has from fifteen to twenty per month, while taking enough bromide to produce the severest acne. On eight grains of trional she had no attacks the first week, but she suffered from drowsiness, vertigo, and a full feeling in the head. During the next two weeks, when only four grains four times daily were given, she had three attacks, with still the drowsy feeling and lack of tone. The patient was directed to stop the trional for one week to notice the effect, but the next day six attacks occurred and on the third day seven more, so that the patient herself began again with small doses, taking two grains five times daily. And since so doing she has not had an attack in three weeks or to date.

Case IV.—W. J., male, aged 17 years, a brother of the previous case, had general attacks since he was four years old. He has about fifteen or twenty per month, and has gone through about the same treatment as his sister. He had lost all ambition, and the bromides

had produced so much acne that he did not care to go out. On eight grains of trional, three times daily, he had four attacks in the first week. Two of these were very mild. On account of sleepiness he was placed on eight grains only twice daily. Now he had seven attacks in the following five weeks. His symptoms of bromism and acne are gradually disappearing.

Case V.—E. M., male, 8 years old, has had general convulsions for the last four years. The bromides did not have much effect, he having about fourteen attacks per day. Trional, four grains three times daily, reduced the number to four per week. And he would go some weeks without any. On stopping the trional he would have from ten to fourteen per day. His mother stated that he behaved more like himself; that the attacks which he did have were less severe; and that he had complained of no bad effects from the medicine.

Case VI.—M. M., female, 12 years old, had convulsions from the age of one year. Severe attacks at long intervals occurred until 7 years of age. Since that time the general convulsions have been few, but *petit mal* attacks have taken their place in increasing numbers, so that she had when first seen four or five of the latter per day. Trional four grains three times daily was given. The first week she had four attacks. The trional was increased to four grains four times daily. The next twenty-two days she went without an attack. Then she had several slight ones in one day. But there is no record of any more attacks during the next few weeks that she reported at the hospital. The trional made her stupid at times, but on the whole she was better.

Case VII.—E. W., a laborer, aged 23 years, had general convulsions from the age of 12 years until the present. He had had two or three attacks per week, and at times five in one day. On trional, eight grains three times daily, he had one convulsion in three weeks, and suffered from some slight vertigo and drowsiness. On the fourth week he had two very severe attacks and four mild ones. Now on eight grains of trional and four grains of antifebrin, three times daily, he had seven attacks in ten weeks. These were all less severe; and he felt better than for a long time.

Case VIII.—A female, 18 years old, dated her convulsions from the time of the occurrence of a right spastic hemiplegia at 13 months of age. She had two attacks weekly when first seen. On trional, twenty-five grains daily, the attacks did not decrease in number. But during seven weeks, while taking only five grains three times daily, she had only six attacks.

Case IX.—J. A. C., male, 14 years old, developed epilepsy at 4

years of age. At 11 years of age he began to have some choreic movements. He had as many as five convulsions a day. He was placed on five grains of trional three times daily; and has had no convulsion in the last six months, and the chorea has entirely disappeared.

Case X.—B. G., 5 years old,—a child that also suffered from microcephalus,—had five attacks per day. Trional, three grains three times daily, reduced this number of attacks to one per day during one month of treatment.

Case XI.—J. F. G., male, aged 10 years, has had from one to four general convulsions daily since 8 years old. Sodium bromide reduced this number to one in every two or three days. Thinking that trional might have a greater effect, he was given five grains three times daily. He now averaged one attack per day. When going back to the bromide there was no improvement, he having one almost every day.

Case XII.—W. W., male, aged 24 years, had general convulsions for the last twelve years. The number for the last two years previous to coming to the hospital averaged about one a week. Trional, ten grains three times daily, had no appreciable effect, as he had five attacks in the next five weeks. On taking sodium bromide, fifteen grains three times daily, the number of attacks kept up to the usual average.

Case XIII.—E. H., a colored messenger boy, 16 years old, had when not taking medicine two or three *petit mal* attacks daily, with an occasional general convulsion. Potassium bromide, fifteen grains three times daily, controlled the attacks so that he would have but two or three petit mal attacks with one general attack in a month, sometimes going eight weeks without an attack. On trional, eight grains three times daily, he did not have any attacks the first week, but, because of nausea, dizziness, and at times "talking queer," the amount was reduced to five grains twice daily. With this amount he had from three to four attacks per month, mostly mild. When he stopped the trional the attacks were more frequent and severe.

Other cases might be added in which there was an apparent decrease in the number of attacks, but they reported at the hospital so few times that the results could not be carefully watched. Others again suffered under trional from so much drowsiness and vertigo, and had so little benefit as to the number of attacks, that the treatment was kept up but one or two weeks.

Of the thirteen cases cited above, the first ten show a marked decrease in the number of attacks during the time of taking the trional; and the physical symptoms during this time were singularly

improved. In the first five of these cases, the number of attacks was less during the time of taking the trional than during the time of taking bromides.

In Cases XI and XIII the bromides controlled the attacks better than trional, and did not produce such annoying symptoms. In Case XII neither drug seemed beneficial.

When substituting this drug pains have been taken not to impress the patients with the notion that they are under the influence of some novel means of relief. We think we have thus excluded the beneficial effects seen so often in the epileptic under a change of treatment. It is common to send cases to the infirmary in order that the exact phenomena of the spasms may be seen and recorded by trained observers. Very often weeks go by under these circumstances without chance to see a fit. And this in cases having before had a half-dozen convulsions every week. Similar results from any impressive change in treatment are familiar, and Christian science, faith cure, mind healing, etc., have had in these cases their time of triumph, and then, later, have had to confess defeat before the implacable return of the attacks.

With all these facts fully in mind Dr. Mitchell believes that trional may often be used as an efficient substitute for bromides. He has so far seen no ill results from many weeks of its continuous use. It is at times well to give bromides in the daytime and trional at night.

Our past experience here is that a proportion of cases of petit mal yield better to continuous use of antifebrin than to bromides.

Finally, it may be said that of all the group trional appears to be the most available substitute for bromides.

Treatment of Trachoma.

U. L. Hellgren treated forty-two cases, some of trachoma, some of follicular conjunctivitis, according to Knapp's method (*Hygeia*, LVI, No. 12, p. 508). Before the operation he disinfected the conjunctival sac with 1 to 5000 corrosive sublimate, and after the operation washed it out thoroughly with the same solution in a strength of 1 to 1000, as recommended by Bjerrum. He never made use of scarification, and substituted smooth forceps for the canulated forceps of Knapp. In six cases keratitis followed the operation, being central in one case, and followed by cloudiness of the cornea, so that sight was diminished. He regards operative intervention as contraindicated in acute trachoma, but not where the disease is accompanied by corneal complications.—*Universal Medical Journal.*

ALUMNI NOTES.

The University Botanic Garden.

An encouraging report was recently submitted by Professor John M. MacFarlane to the Provost of the University, regarding the development and present position of the Botanic Garden. The first part of the report states that valuable contributions of living plants have been received during the past twelve months from Washington, Boston, Dublin, Edinburgh, and London gardens, as well as from many kind donors in and around Philadelphia. The seeds of about 2400 species have come from Dublin, Cambridge, Edinburgh, Ilna, Ventimiglia, and St. Petersburg.

In the greenhouses and gardens of the University fully 3000 species are now established. The systematic beds, class borders, lily ponds, and rack garden proved highly successful during the past year, while the vigorous efforts of a staff of workmen, employed during the fall months, have prepared the entire area around the Biological Department for spring planting. Several large banks of native shrubs and trees have been planted, and additions are constantly being made. Already the benefits that can be derived from the garden are being recognized. For the instruction of undergraduate students it has furnished about 1700 cut specimens, and the lectures have been illustrated practically by living plants in a manner that has never been possible hitherto. The professor of materia medica has obtained fresh illustrative specimens for his lectures, and has testified in class to the importance of students being conversant with the living plants of the United States Dispensatory.

In promoting graduate research the garden has already been of service. Several advanced students have been liberally supplied with material for the prosecution of research investigation, and good results are being obtained.

Within a few weeks the back part of the garden will be laid out as a small arboretum, in which several hundred choice shrubs and trees will be grown. A rich donation was recently received from the Arnold Arboretum, Boston, and additional collections are promised. An elaborate set of labels, giving the technical and common names of each plant, as well as its native home, is being prepared, and these will give added value to the collection. At the present rate of prog-

ress the garden should have an attractive appearance during the coming summer.

An opportune time seems now to have arrived for inaugurating a strong botanical society that shall be more or less identified with the work of the University, but which shall be on a broad and liberal basis. Efforts looking in this direction have been put forth during the past nine months, and we trust that these will be crowned with complete success.

A New Trustee.

At a meeting of the Trustees of the University of Pennsylvania, held on February 4, 1896, Dr. Morris J. Lewis was elected a trustee to fill the vacancy occasioned by the resignation of Dr. William Hunt. Dr. Lewis was graduated in the Department of Arts in 1871, and in the Medical Department in 1874. He is connected with the Pennsylvania, Orthopedic, and Children's Hospitals.

The Dormitories.

The University dormitories are rapidly approaching completion, and will certainly be ready for occupancy at the opening of the ensuing college year. It is perhaps sufficient to say that the buildings now being erected are but one-fourth of the entire plan projected. When completed the dormitory block, including the Dining Hall ("The Abraham Lincoln Memorial") and possibly a University chapel, will occupy the whole of the old athletic field between Spruce and Pine Streets, and Thirty-sixth and Thirty-seventh Streets, and also the triangle west of Thirty-seventh Street, and between Woodland Avenue and Pine Street. The triangle is the portion now being built upon, and it is already evident that this will be one of the most beautiful and complete groups of dormitory buildings in the world.

The comfort of the occupants has been the first consideration throughout, and the dormitories in this respect are unexcelled. There are lavatories on every floor, with shower baths and all other conveniences, and in no part are there more than eight students to a lavatory. The dividing of the buildings into small groups of rooms, each reached by its own staircase from the "quad," insures quiet and order. Most of the rooms are large, all are well lighted, and all have ample closet space. Many of them have open fire-places, though these are not necessary for comfort, as the buildings are to be heated throughout with steam and lighted by electricity from the University Light and Heat Station.

A schedule of prices has been approved by the trustees; though it is understood that these are not necessarily final. They

will be announced shortly, and will be the prices for the years 1896 and 1897, at least. They are based largely upon prices now paid by University students boarding near the University, and the hope is that they will be found within the means of all classes of men. It will be possible to live in the dormitories at as low a cost as $35 a year (thirty-six weeks) or less than a dollar a week, and the highest price per student will be $105, or $2.91 a week. The average rental per student is $78.73, or $2.18 per week. These prices include rent, light, heat, and all reasonable care of the rooms. The furnishing will be an additional cost, but a plan is now under consideration which will probably reduce the cost of this to about $5 a year for each student.

There will be opened next fall two suites of four rooms (accommodating three students each), 163 suites of two or more rooms (accommodating two students each), and 95 single rooms, or 260 suites of rooms and single rooms in all. These will accommodate about 360 men, and it is intended that they shall be occupied first of all by the younger students, who will thus live more directly under the supervision of the University than is the case at present.

How soon it will be possible to complete the whole block of buildings cannot now be predicted with certainty, though it may be within a few years. But the plans for the great Dining-Hall have been prepared, and show a building of which we are one day to be very proud. Already a part of the $200,000 needed has been subscribed, and those who best know the Provost's ability to carry out his plans, confidently hope to see the ground broken for it within a year. When it is completed it will be possible to furnish good board to students at considerably less than $4 a week, and to accommodate easily all of the 1000 or more students who will be eventually living in the dormitories.

The Leidy Memorial Fellowship in Anatomy.

An encouraging report has been received from the secretary of the committee organized for the purpose of raising a fund to establish a Fellowship in Anatomy, as a memorial to the late Dr. Joseph Leidy. The object of the fellowship is to provide sufficient funds to enable some practical working anatomist, who will be appointed by the proper professorial chairs, to utilize the vast collection of material in the Wistar Museum. Thirty thousand dollars will put such a fellowship on a permanent working basis, it being intended that the income from this sum should be paid to the Fellow, thus enabling him to pursue special lines of work with the assurance that his daily

wants will be provided for. Communications and subscriptions should be addressed to the Secretary and Treasurer, Dr. J. Howe Adams, 1523 Locust Street, Philadelphia.

The New Dental Laboratory.

Ground will soon be broken for the new Dental Laboratory of the University, to be erected at the corner of Thirty-third and Spruce Streets. The plans of the new structure, which will be used exclusively for dental purposes, and which are now being prepared, provide accommodations for 600 students.

The Membership of the Houston Club.

The total membership of the Houston Club up to date is: active, 1418; associate, 354; life, 25. This is a remarkable record for a club that has been in existence less than two months. It has been found that four pool and two billiard tables are insufficient for the use of the club, and action has been taken by the House Committee to have two more pool tables placed in the room.

"The Alumni Register."

The initial number of the *Alumni Register*, published by the General Alumni Society of the University of Pennsylvania, appeared early in the month. It contains a letter of greeting from Dr. William Pepper, reports from the various departments of the University, and many items of general interest. The *Register* will be published in January, March, May, and November, and will be sent free to all members of the General Alumni Society.

The Results of the Pennsylvania State Medical Board Examination.

A gratifying showing for the graduates of the Medical Department of the University was made at the State medical board examination held in this State during December. Out of seventy-six applicants for certificates, fifty-four passed the required test. It is noted with pleasure that not one of the graduates of the University of Pennsylvania failed to obtain the required average, while a number of them almost reached the century mark. The following institutions are represented in the list of applicants: University of the South, Baltimore Medical College, Jefferson Medical College, Medico-Chirurgical College, Western Pennsylvania Medical College, Woman's Medical College of Pennsylvania, University of Pennsylvania, College of Physicians and Surgeons, Canada, and College de Médecine, France.

Appointments.

The Trustees of the Norristown Hospital for the Insane have appointed Drs. John B. Deaver, E. W. Holmes, and Edward Martin consulting surgeons to the hospital.

Dr. John M. Swan, Jr., has been elected Curator of the Museum of the Episcopal Hospital, Philadelphia.

Degree Conferred.

Dr. N. L. Johnson, Class of '91, has had the degree of Master of Arts conferred upon him by Princeton College.

Necrology.

Dr. Henry Ernest Goodman died suddenly in Philadelphia on February 3, 1896. Dr. Goodman was born in Philadelphia on April 12, 1836, and was graduated from the Medical Department of the University in 1859. He served as surgeon throughout the Civil War, and was present at the battles of Ball's Bluff, Cedar Mountain, Antietam, Chancellorsville, Gettysburg, Lookout Mountain, Missionary Ridge, Ringgold, and Resaca. From 1866 to 1872 he was physician to the Port of Philadelphia. At the time of his death he was a visiting physician to the Wills Eye Hospital and to the Orthopedic Hospital, and was a member of the College of Physicians, Pathological Society, Academy of Natural Sciences, American Medical Association, and American Public Health Association.

Dr. William W. Jaggard died on January 30, 1896. Dr. Jaggard was born in Altoona, Pa., May 26, 1857. In 1877 he graduated with high honors at Dickinson College, and in 1880 he took his degree in Medicine from the University of Pennsylvania, receiving the examination prize, the essay prize, and the "Hodge" medal. After serving for a short time as resident physician in the University Hospital, and as assistant surgeon in the United States navy, he went to Vienna to complete his studies, and remained there two years. On his return to this country he settled in Chicago, and soon became professor of Obstetrics in the Medical Department of the Northwestern University, and acquired an enviable success as a teacher and practitioner. The immediate cause of his death was an attack of appendicitis, for which he was under treatment at the Presbyterian Hospital. His last contribution to medical literature appeared in the recently issued "American Text-Book of Obstetrics."

EDITORIAL.

THE NEW RADIATION.

Professor Röntgen's discovery of a method of photographing by means of a Crookes vacuum tube through substances which are opaque to ordinary light has been repeatedly confirmed by investigators throughout the world. It has long been known that when electric currents are discharged through glass tubes, which have been exhausted more or less completely of air, a strong phosphorescent light emanates from the negative pole, or cathode.

Professor Crookes observed, however, near the cathode a small dark spot, all the more remarkable on account of the brilliant light about, and subsequently in investigating certain effects on bodies in the tube, such as a small Maltese cross of aluminum, found that some remarkable energy was manifesting itself there. This was the nucleus of Professor Röntgen's discovery. In 1893, Dr. Lenard described before the Royal Prussian Academy of Sciences, at Berlin, an arrangement by which the rays were made to pass through a plate of aluminum .003 millimetre thick. This plate, while quite opaque to ordinary light, permitted the rays from the Crookes tube to penetrate it, rendering the air faintly luminous, and creating a strong odor of ozone. Professor Röntgen's discovery is that, in addition to this phosphorescence, another radiation of a hitherto unknown nature is produced, which is capable of penetrating through all bodies, though not to the same extent. Wood and human flesh are more easily penetrated by it than glass, and, although its effects do not make themselves visible to the human eye, they can be recorded photographically.

In a photograph of the hand obtained by these ultra rays, the flesh, being comparatively transparent to the radiation, is only faintly outlined, while the bones and joints are clearly defined, and a signet-ring worn on one of the fingers is the most distinct feature in the picture. The new radiation differs materially from ordinary light in that, so far as is yet known, it can neither be reflected nor refracted. The lens has no power to concentrate it and so form an image in the ordinary way. All the photographs taken with it are in the nature of shadows, formed by interposing various substances in the path of the rays. Heavy substancs, such as iron, lead, glass, and Iceland spar,

offer more resistance than do lighter substances, such as wood, paper, aluminum, and flesh, and this holds good quite irrespective of the behavior of those substances with ordinary light.

Another interesting fact, discovered by Professor J. J. Thompson, is that the Röntgen rays tend to discharge an electrified body on which they impinge, whether the charge of the body be positive or negative. He found that a charged body constitutes a more sensitive test for the presence of the Röntgen rays than a photographic plate or fluorescent screen. The effect takes place whether the changed body be covered with parafine, sulphur, or vulcanite. Hitherto no means have been known beyond mere thermal influence of altering the electrical insulating power of solid materials by radiant energy of any character.

Mr. Edison has substituted for the Crookes tubes, which are costly and delicate, ordinary incandescent light bulbs. The glass in the latter was blown to a thickness of but one-sixty-fourth of an inch, and as this was thinner than the glass of the Crookes tube, it offered less resistance to the cathode rays, and consequently these rays were more powerful when thrown on the object to be photographed.

Professor Goodspeed and Dr. Cattell, of the University of Pennsylvania, have recently exhibited some excellent photographs obtained by the new process. A Crookes vacuum tube was fastened a few inches above a table, and immediately under the tube was placed a photographic plate, enclosed in a light, tight plate-holder, and thoroughly protected from the rays of ordinary light; upon the slide of this holder the object to be photographed was placed. The plates were developed in the dark room in the ordinary way, and photographs were subsequently printed from them; at first an exposure of at least an hour was necessary to secure good pictures, but by an improvement in the technique of the process, the time has been reduced to a few minutes.

How far medical science will be benefited by the new discovery it is, of course, impossible to predict, but already it has been employed successfully in practice in a number of instances. By its aid Dr. Neusser, of Vienna, has recently demonstrated the position of calcareous deposits in the liver, bladder, and kidneys of patients. Bullets and other foreign bodies impacted in the flesh and bones have been repeatedly located in this way. Its application to the detection of obscure fractures and luxations seems highly probable. At present Röntgen's discovery cannot be employed in the diagnosis of new formations or inflammatory deposits in the various solid organs of the body, like the lung, liver, and brain, since the physical character of such tissues so clearly resembles that of the media in which they are

located; if, however methods can be devised of intensifying this new radiation, or of increasing sufficiently the sensitive of the photographic tests to its influence, the clinician will doubtless have at his command another means of detecting morbid processes at work in the interior of the body.

RAISING THE STANDARD IN THE MEDICAL SCHOOL.

A Committee of the Board of Trustees of the University has under consideration a recommendation of the faculty of medicine to increase the requirements for entrance to the Department of Medicine. The recommendation is that, beginning with the year 1896, the entrance requirements shall be increased, and thereafter be increased, year by year, until 1899, when they shall be the same as those required for admission to the Freshman Class of the Arts Department.

In addition to raising the standard of admission, it is proposed to increase the tuition fee from $150 to $200 per annum. Should the change be instituted, it will not affect the students who have already matriculated, but only the new students who enter after the present session. If the tuition fee should be increased to $200 per annum, it will then be the same as the tuition fee at the College of Physicians and Surgeons of New York, and at the Harvard Medical School.

Already certain changes have been made regarding the admission of students to advanced standing in the Department of Medicine. Until this year, graduates of schools requiring three years' attendance for graduation were admitted to the fourth-year class upon passing examination in therapeutics and obstetrics. Hereafter, graduates of such schools will be placed upon the same basis as students who have attended three courses in a medical school requiring four years' attendance for graduation, and thus will only be admitted to the fourth-year class upon satisfactory examinations in general and medical chemistry, materia medica and pharmacy, anatomy, physiology, applied anatomy, general and special pathological anatomy, therapeutics, obstetrics, surgery, and gynecology. Graduates of recognized medical schools requiring four years' attendance will be admitted to the fourth-year class of the Medical Department of the University upon passing examinations in obstetrics, therapeutics, and pathology.

Heretofore, graduates in pharmacy and dentistry have been admitted to the second-year class of the Department of Medicine after having passed certain first-year branches, but hereafter such graduates will not be admitted to advanced standing, but may enter the first-year class upon passing the entrance examination.

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.,

ASSISTED BY

M. HOWARD FUSSELL, M.D., AND A. O. J. KELLY, M.D.

Primary Cancer of the Lung.

Wolf (*Fortschritte der Medicin*, Nos. 18 and 19, 1895) gives an extensive communication concerning thirty-one cases of primary carcinoma of the lung which have been met with in the Dresden City Hospital since 1885. The percentage of occurrence was 0.428 (thirty-one cases among 7228 autopsies). Twenty-seven cases were men; four, women; and the ages ranged between 36 years and 70 years, the majority being past 50 years. The right lung was five times the seat of the tumor, the left lung three times. Thirteen times the right bronchus was affected, eight times the left bronchus, and twice both bronchi were primarily involved. In five cases the bronchial carcinoma extented to the trachea. Thirteen cases were complicated with tuberculosis, and in several instances the tuberculosis is asserted to be the cause of the later developing carcinoma. In one case miliary tuberculosis was observed, in another miliary carcinosis, in another both miliary tuberculosis and miliary carcinosis. The course of the affection is very various and there is no distinctive clinical indication of the disease. The diagnosis is more possible in a case of lung carcinoma, especially when the tumor is situated near the pleura, than in a case of bronchial carcinoma. In the former instance a circumscribed dulness in conjunction with great wasting, and catarrhal sputum free of bacilli, but occasionally bloody, may suggest the affection. Pain is occasionally present, but naturally dyspneic symptoms are more common to bronchial carcinoma than to lung carcinoma. Implication of the bronchial glands often manifests itself by dyspnea or recurrent paralysis. Metastasis is more apt to occur with bronchial than with the proper lung carcinoma, as in the former instance the affection of the bronchial glands favors implication of the great vessels. The presence in the sputum of particles of the tumor is apparently rare, as it was observed in only one of the thirty-one cases.

Chylous and Chyliform Exudates in the Pleura and Pericardial Cavities.

Bargebuhr (*Deutsches Archiv für klinische Medicin*, Vol. LIV, Parts 4 and 5, 1895) reports two cases and gives a *résumé* of all cases he has been able to collect from the literature. Of his personal cases, Case I was that of a man, aged 42 years, affected with carcinoma of the peritoneum with metastasis to the liver, left lung,

and left pleura. The pleural exudate necessitated repeated evacuation. The fluid withdrawn was yellowish-brown, contained numerous flocculi which were found to consist of aggregations of cells which for the most part were large epithelial cells, fatty degenerated; there were a few fatty degenerated polynuclear leucocytes. Case II was that of a female, aged 31 years, in whom was found a carcinoma of the stomach with metastasis to the liver, lungs, and bronchial glands; further, a pleural exudate which was yellowish-white, turbid, slightly opalescent, of a specific gravity of 1025.5, and of neutral reaction. Microscopically there were numerous fatty degenerated leucocytes, swollen epithelium, fat drops, and granules. The fluid did not decompose, but after some time deposited a layer of fat. Macroscopically no injury to the thoracic duct was demonstrable. Covering the surface of the lung was a whitish net-work of distended lymph-vessels. The first case is one of so-called hydrops adiposus, in which there occurs a fatty degeneration of the carcinoma cells which, through ulceration of the tumor, reach the exudate. In the second case there occurred an exudate of chyle into the pleural cavity. The diagnosis of chylothorax, as well as of chylo-pericardium or ascites chylosis, cannot be made without a knowledge of the character of the exudate. A chylothorax may be supposed in the presence of an intrathoracic tumor, particularly malignant, new formation of the pleura, glands, or lymph-channels; further, with thrombosis of the left subclavian vein and consecutive impediment to the flow of the chyle from the ductus thoracicus, with general disease of the lymphatic vessels; or with simultaneously occurring chylous ascites. The prognosis is unfavorable; the therapy symptomatic. There is a short description of a case of chylo-pericardium.

A Case of Perspiration Neurasthenia.

Peyer (*Centralblatt für die Krankheiten des Harn- und Sexualorgane*, Vol. VI, Part 6; and *Centralblatt für innere Medicin*, No. 50, 1895) reports the case of a 30-year-old patient, who suffered since his twenty-sixth year with severe perspiration during the day, and during the month previous to observation sweating during the night, so profuse as to necessitate several changes of night clothes. Various medications proved without effect. Lately the patient had become very thin. The history revealed many years of masturbation. At the time of examination there spread throughout the room an intense acid odor of perspiration, and the patient's shirt became thoroughly wet, although the temperature was low and the patient had made no exertion. Diagnosis: Neurasthenia sexualis. The treatment was with bougies and psychrophor, wherewith was determined an intense hyperesthesia of the urethra. At the end of a month and a half of treatment there was total cessation of the abnormal perspiration.

Vertigo.

Mendel (*Berliner klinische Wochenschrift*, No. 26, 1895) mentions the opinions of various authors regarding the nature of vertigo, and the differences of opinion which they entertain. He personally recognizes four degrees of vertigo: (1) The mildest grade, which consists purely in a sensation of a sudden change of the external world as a projection of the perceptions from without, due to the changed conditions of the eye-muscles: (2) there follows the first, the sensation of a disturbance of the body equilibrium; (3) in addition to the previous sensations, there ensues veritable body swaying; (4) finally, there follow other conditions, as occipital headache, tinnitus aurium, even deafness, vomiting, profuse perspiration,

slowing of the pulse-rate. He discusses the *modus operandi* of the production of this phenomenon, and finally defines vertigo as a symptom complex, which essentially consists in a disturbance of the body equilibrium produced by morbidly changed function of the ocular muscular apparatus. When the ocular muscular apparatus as such is not diseased, the focus for the production of the vertigo is to be sought in a transitory disturbance of the circulation in the region of the nuclei of the ocular muscles. Based upon a physico-anatomical study, he concludes that there is no part of the brain more prone to suffer from slight circulatory disturbances as the region of the nuclei of the oculo-motor and trochlear nerves, and to almost the same extent that of the abducens. It is thus that every disturbance of the cerebral circulation first manifests itself by disordered function of the nuclei of the aforementioned nerves.

Trauma and Gastric Disease.

Ebstein (*Deutsches Archiv für klinische Medicin*, Vol. LIV, Parts 4 and 5, 1895) reports two very interesting cases of gastric ulcer attendant upon excessive muscular efforts.

Case I, a laborer, aged 39 years, previously healthy, experienced, upon attempting to lift a great weight, a "crack" in his body, which obliged him to desist in his efforts. A few days later there occurred profuse bloody vomiting. Three-quarters of a year later there developed the symptoms of a cancerous affection in the abdomen, with marked icterus and a rapidly-developing marked intestinal stenosis. Death ensued by perforative peritonitis about ten months after the occurrence of the accident. The autopsy confirmed the diagnosis; there was found a perforated gastric ulcer surrounded by a carcinomatously-infiltrated cicatrix.

Case II was that of a male, a stonecutter, previously healthy, who became suddenly ill endeavoring to lift a heavy stone. He had frequent vomiting of bloody masses, with dyspeptic symptoms, constipation, and bloody stools. The patient had in addition gastric dilatation, chronic heart-disease, and pulmonary phthisis. The etiology of both cases is similar. Due to the excessive muscular effort, there occurred a rupture of the smaller gastric vessels, a hemorrhagic infiltration of the mucous membrane, and a consequent ulcer. In addition to these cases, Ebstein cites other (seven) observations as a basis for remarks concerning the influence of injuries to the stomach in the production of gastric disorders, particularly gastric hemorrhage. Nor does the injury to the stomach require to be extensive. Hemorrhagic erosions can give rise to even fatal hemorrhage, and there are also reported cases, of which Ebstein cites one, of fatal hemorrhage, without any demonstrable lesion of the gastro-intestinal tract. Ebstein's case was one of pernicious anemia in a young girl. The trauma may be general, affecting the entire body, the stomach indirectly, or it may be local, as direct violence, blows, etc. The stomach may also suffer from a direct action on its inner surface of injurious influences of a mechanical, thermic, or chemical nature. The nervous system is not without influence, affecting the stomach directly or *via* the circulation. Of 157 cases of gastric hemorrhage or gastric ulcer, Ebstein observed five in which a trauma was probably the causative agent.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

G. G. DAVIS, M.D., M.R.C.S., AND ELLWOOD R. KIRBY, M.D.

Lung Surgery.

PÉAN (*Presse Médical*, October 23, 1895), in concluding a lengthy address on the surgery of the lung, gave the following results of his personal experience, and of his study of the numerous published reports on this subject,—

(1) The surgery of the lung, like that of the viscera, has of late made much progress, thanks to the perfection of our anatomical knowledge, and to the improvement in operative procedures for the arrest of hemorrhage.

(2) Equally favorable conditions for surgical intervention do not occur in all affections of the lungs.

(3) Wounds caused by contusing bodies, by stabbing and cutting instruments, and by gunshot projectiles of small and medium calibre usually heal well without causing suppuration or troublesome reaction.

(4) The danger which results from such injuries is due, not to the injury of the lung-structure itself, but rather to the multiplicity and extent of the wounds and to the lesions of important neigboring parts.

(5) The surgeon should not intervene two hastily in these injuries either by making a simple exploration, or by attempting to extract a projectile which can be seen near the surface.

(6) Large projectiles such as fragments of shell give rise, especially on the field of battle, to disorders which in a large majority of instances are so severe that it is impossible for the surgeon to ward off danger even by suturing the visceral and parietal layers of the pleura.

(7) A certain number of spontaneous affections of the lung may be successfully dealt with if the surgeon be careful to make a study of symptoms and indications, and a careful selection of his operative measures.

(8) Simple and gangrenous abscesses, when they are of limited extent, show no tendency to cure, and threaten life, are amenable to surgical treatment.

(9) In such cases the results are almost always favorable.

(10) It is advisable to open, scrape, drain, and even cauterize tuberculous abscesses of the lung, when these cause severe pain or have resulted in fistula, or contracted extensive adhesions with the pleura.

(11) It is often useful in these cases to associate with such treatment partial resection of the ribs.

(12) No benefit is likely to result from excision of fragments of the lung surrounding the tuberculous cavities as the tubercle bacilli have already spread beyond the apparent limit of the disease.

(13) It is advisable to open hydatid cysts of the lung, the surgeon taking advantage of adhesions when such exist, and establishing still further adhesions when those existing are not of sufficient extent, in order to be able to wash out the cavity with antiseptic solutions.

(14) Solid tumors of the lung should be extirpated when superficial; the occasions, however, for this treatment must be rare, as such growths are almost always secondary.

The Operative Treatment of Traumatic Rupture of the Diaphragm.

Schlotter (*Korrespondenzblatt für schweizer Aerzte*, No. 12, 1895) reports an instance of successful operation for a penetrating wound of the chest extending through the diaphragm into the abdominal cavity. The patient had received several wounds by stabbing in the left side of the chest. Through one of these, which was situated in the ninth intercostal space, there was a protrusion of omentum, on the reduction of which a penetrating wound could be felt in the diaphragm. After the protruding omentum had been placed within the abdominal cavity, and the wound in the thoracic wall enlarged, the slit in the diaphragm was closed by sutures. Healing occurred by first intention and the patient made a good recovery.

A New Operation for Varicocele.

Brault (*Lyon Médical*, October, 1895) describes a new operation for severe cases of varicocele which he has frequently practised upon the cadaver and applied with success to two living subjects. This method consists in removing a large elliptical portion of skin from the external and posterior surface of the affected side of the scrotum.

After this flap, the extremities of which are directed upward and downward, has been dissected away the enlarged veins are exposed and resected between ligatures. The large and gaping wound is finally closed by bringing the lower to the upper angle of the ellipse, and by stitching together the opposed margins of skin. This operation may be performed rapidly and without much hemorrhage, and is in many respects superior to that in which a portion of the scrotum is removed by a transverse wound.

Castration for Enlarged Prostate.

Lendon (*Australasian Medical Gazette*, September, 1895) records a case of this operation in a man aged 82, which he believes to be the greatest age at which this operation has been successfully performed. The result after operation was entirely satisfactory, he never again required the use of the catheter till his death.

Poulten, in the same paper, reports three cases in men, aged 60, 51, and 73 years respectively, in which he had successfully performed castration for hypertrophy of the prostate.

Tannin and Iodoform in the Treatment of Wounds.

Ceccherelle (*Riforma Medical*, October, 1895) draws attention to a method of treating granulating wounds, which he has tried with success for the last six years. The method consists in dusting the surface with a mixture of equal parts of iodoform and tannin. He finds that tuberculous ulcers, granulating wounds, etc., heal better under this treatment than when simple iodoform is used. At first he tried tannic acid and potassium iodide, but had to abandon it. In fungating wounds with flabby granulations this mixture acts very well.

The Treatment of Glenard's Disease by Abdominal Section.

Treves (*British Medical Journal*, January 4, 1896) says the disease in question, sometimes called abdominal ptosis, depends in the main upon a relaxation of the abdominal wall and of the supporting ligaments of the viscera; as a result of which

the more conspicuous organs are found to have dropped to a lower level in the abdomen. The affection is usually met with in women. No definite causes have been assigned to it, although some attach an etiological importance to repeated pregnancies, to undue exertion, and to injuries. It is stated that the right bend of the transverse colon is the first part to descend, the stomach is then drawn down, with the result that the pyloric opening is compressed and the passage of food hindered. In due course the rest of the transverse colon descends, the jejuno-duodenal orifice is narrowed, and a further obstruction is offered to the passage of the alimentary matters. The whole mass of the small intestines becomes prolapsed, the lower part of the abdomen is prominent and possibly pendulous. The liver and kidneys become loose and are described as floating. The results of such a condition are manifold and distressing. The patient becomes an invalid and is unfit for any exertion. There is a sense of weight and a sickening dragging sensation. Gastric symptoms are prominent, the most conspicuous being the burning in the epigastric region, vomiting, pain, loss of appetite, and distress after the taking of food. Usually there is constipation.

The symptoms are more or less relieved by pressure upon the lower part of the abdomen.

The author reports a case upon which he operated. The abdomen was opened in the median line just below the ensiform cartilage. The liver presented, and it was found that it could be dragged down to a remarkable degree. The wound was then enlarged so as to obtain a good view of the stomach. The great omentum was rolled up into a round and rigid cord, and was fixed to a mass of stony hardness in the upper part of the right iliac region. A second incision was made directly over this mass, and it was found to be made up of a collection of old tuberculous glands. An examination of the other abdominal organs revealed nothing abnormal. The liver was firmly fastened in place and the abdominal wounds closed. The patient made an uninterrupted recovery, and when seen, some five months later, she only complained of weakness and some vague intestinal pains.

Retention Cysts of Cowper's Glands as a Cause of Chronic Gleet, Spasmodic and Organic Strictures, and Extravasation of Urine.

Fenwick (*British Medical Journal*, January 4, 1896) says he believes that in discovering retention cysts of Cowper's glands to be not infrequent in the adult, he has chanced upon an important clue to one of the causes of some of the more obscure and chronic affections of the deep urethra. It is true that several cases of cysts of these glands have been found in infants, upon post-mortem examination, and that three probable cases in adults have been recorded, but it has not been shown that small size cysts occur in young adults, and may remain for months unsuspected, as being the cause of chronic change and definite irritation of the urethral mucous membrane. Since he has used the aero-urethroscope he has examined some hundreds of urethræ in the inflated condition, and has noticed especially the pathological conditions of the smaller glands. He has also paid especial attention to the changes which take place in these glands as the result of chronic gleet.

Some years ago he noticed an ovoid swelling in the bulb of the urethra. Incising it with a very small knife, he evacuated about a drachm of mucus streaked with milky pus.

The symptoms produced by such cysts are,—

(1) A chronic milky gleet, slight but persistent.

(2) A distinct, although slight, obstruction to the free passage of urine. Apparently this is due to a spasm of the compressor urethræ muscle excited by the presence of the cyst.

(3) A dull heavy weight and pain on one or other side of the median line of the perineum at the margin of the anus, somewhat similar to the pain of chronic prostatitis, and probably often mistaken for it. This pain is liable to exacerbations from cold, alcohol, etc.

For the treatment of this condition the author recommends incision by the fine harpoon knife, and then thorough cauterization of the cyst cavity with the solid stick of nitrate of silver. In future cases the author thinks it would be best to incise through the perineum.

Implantation of Ureters into the Intestines.

Borri (*Il. Policlinico*, October 1, 1895), after successful experiments upon dogs, with a modified form of button, refers to two cases in the human subject in which the method was successfully applied. The ureter is fastened around one end of the bobbin, which is then introduced into the bowel through a small longitudinal incision, and is afterwards sewn up. In process of time union occurs and the bobbin is passed per anum. In the first case of tuberculosis of the bladder the button was passed on the eighth day, and around its neck was seen the silk that had been used to fix the ureter. The first urine was noticed in from sixteen to twenty-four hours after the operation, and henceforth at intervals of two or three hours, about 200 to 300 cubic centimetres. In the second case a large vesico-vaginal fistula with total destruction of the urethra, the button came away on the twelfth day. In both cases the results were satisfactory.

THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D., AND ARTHUR A. STEVENS, M.D.

Fatal Phenacetin-Poisoning.

Krönig (*Berliner klinische Wochenschrift*, November 18, 1895) relates the case of a boy, aged 17, who presented the general appearance of sepsis. He was the subject of a chronic suppurative otitis media. The general condition, however, indicated some profound alteration in the blood, such as is not seen in cases of sepsis. An examination of the blood revealed the red cells in various stages of dissolution. Even the apparently healthy cells showed considerable changes in age and shape. Thus there was reason to suspect the presence of some blood-poison. The history was that three weeks before admission the patient had been given by his medical adviser five powders of phenacetin, each containing a gramme of the drug, with the direction that not more than two should be taken in the day. Within three weeks he had taken four of these powders without much improvement in his condition. One evening he took another powder, and in the night he was seized with vomiting. The following day he had headache, vomiting, and diarrhea. He

was somewhat cyanosed. His urine was of chocolate color, and later contained blood. The cyanosis increased, and he died two days after admission.

Death occurred within three days after taking the powder. The pathological diagnosis was sepsis, universal methemoglobinemia, swelling of the kidneys, with hemorrhages, necrosis, and pigmentation of the renal cells, double hemorrhagic basilar pneumonia, chronic purulent otitis media, etc. The appearances resembled those of chlorate of potassium poisoning. Occasionally, phenacetin in one-gramme doses has been known to cause vertigo, ataxia, etc. Krönig emphasizes the fact that no blame could be attached to the medical man who prescribed the drug. In the discussion Fränkel, Fürbinger, and Gerhardt all strongly emphasized the importance of giving small doses of drugs like phenacetin in the first instance.

Ferric Chloride in Diphtheria.

Rosenthal (*Therapeutische Monatshefte*, No. 9, 1895) states that during the last few years he has treated 271 cases of diphtheria, with only a mortality of 8.2 per cent. He attributes his success to the administration of ferric chloride in the form of a 2 per-cent. solution in glycerin. From a teaspoonful to a tablespoonful of this mixture is given every hour, day and night, until the membrane has entirely disappeared, after which the dose is gradually diminished. When the membrane is extensive, a pure solution of ferric chloride, or one diluted with equal parts of glycerin or water, is applied thrice daily with a piece of wood wrapped with cotton. After the application the swab is burned. He does not attribute much value to alcoholic stimulants. When the stomach is unretentive he feeds by the bowel. He believes that this remedy prevents the spread of this membrane to the larynx, and gives better results than any other treatment, not excepting the employment of antitoxin.

Treatment of Acid Dyspepsia.

Bergmann (*Wiener medicinische Wochenschrift*, 1895, No. 6) suggests a new method for the cure of acid dyspepsia. It has at least the merit of simplicity. He directs his patients to chew (to retain in the mouth) for about an hour after meals tablets made of equal parts of ginger and calamus-root and of calcined and ammoniated magnesia, with the idea of increasing the alkaline secretion of the saliva. Bearing in mind that the secretive activity of the gastric mucous membrane is abnormally increased in acid dyspepsia, and that aromatic substances, if given in any considerable quantity, would still further increase gastric secretion, his tablets contain only small amounts of the aromatics,—ginger and calamus,—so that while they add slightly to gastric secretion they cause a great increase of salivary secretion.

The excess of the alkaline saliva neutralizes the excess of acidity of the gastric juice.

Bergmann has tried this plan with success in a number of cases of acid dyspepsia occurring in diabetes, in chronic gastric catarrh, and other functional and organic gastric troubles, and now offers it to the profession for control experiments in practice. (Translated by Dr. James J. Walshe.)

Some Points on Milk Diet.

Poggi Pollini (*Archivio di Farmacol e Terapeut*, Vol. III, fasc. 8, August, 1895), publishes the results of his work in the Laboratory of Experimental Materia Medica and Pharmacology in the Royal Institute of Florence. A milk diet, now that

it is used in so many affections of the stomach, has become of great therapeutic importance and its proper management of no little moment. Boas suggests that various substances, according to the idiosyncrasy of the patient, should be added to the milk to make it always tolerable. Dr. Pollini's experiments were with some of the substances that might thus be used to determine their value. He finds,—

(1) That the milk of a young heifer coagulates in thicker masses than that of an old cow, and that the latter is more digestible.

(2) The lab-ferment—that element of the gastric juice to which milk coagulation and subsequent digestion in the stomach is due—is assisted in its action by the salts of the alkaline earths, and especially by the salts of calcium, but is retarded or rendered inert by the salts of the alkalies.

It has been the custom for physicians to consider that anything that decreased the acidity of the gastric juice would facilitate the proper coagulation and digestion of milk.

Lime-water or bicarbonate of soda were given almost irrelevantly. Where the object of a milk diet is to lessen the labor of the stomach, as in gastric ulcer or gastritis, bicarbonate of soda, by hindering the action of the lab-ferment and so leaving the milk to be digested mostly in the intestines, is the proper remedy. Where stomach digestion of the milk is desired lime-water is to be employed.

Other substances were experimented with to determine their action upon the lab-ferment.

(*a*) Sodium chloride, added in varying quantities from a minimum of 1¼ per cent. to a maximum of 3 per cent. or more, causes the milk to remain unaltered as regards coagulation, a few light coagula occurring when the minimum quantity was employed.

(*b*) Fluoride of sodium, added from a minimum of $\frac{1}{10}$ per cent. to a maximum of 1⅓ per cent., hinders coagulation.

(*c*) Phosphate of sodium, added in quantities larger than 2.25 per cent., prevents coagulation.

(*d*) Sulphate of ammonium, in larger proportion than 1.5 per cent., causes the milk to remain unchanged.

(*e*) Acetate of potash in the same proportions, has practically the same effect.

(*f*) Sulphate of potash acts in the same way.

(*g*) Sulphate of magnesium, chloride of barium, and acetate of strontium do not prevent the coagulation of milk.

As the coagulation of milk is a species of fermentation, control experiments were made to determine the action of these salts on other fermentative processes.

The bicarbonate, the phosphate, the chloride, and the fluoride of soda have no effect upon alcoholic, sinapic, or amygdalic fermentation. Lime-water, on the contrary, in small quantities retards all of them, and in reasonable proportion renders them abortive.

Ptyalin fermentation is not affected by the addition of any of these substances, not even by lime-water.

These results are not surprising after a little consideration. Any antiseptic will have a more or less energetic action on organized ferments, but will not, as a rule, affect unorganized ferments.

Lime-water has been found to be antiseptic, so that its action on alcoholic and other fermentations that are the result of organic principles was to be expected. The lab-ferment (lactic) and ptyalin are as far as we yet know amorphous, and their action is due to some chemical change induced by the condition of unrest, in which their atoms exist together, and their readiness to enter new combinations.

The soda salts have no action upon organized ferments, and none upon ptyalin, and yet have a special action on the lab-ferment. This is probably chemical in character, and its study may lead to some more definite knowledge of the constitution of these unorganized ferments. (Translated by Dr. James J. Walshe.)

Arecoline.

Lavagna (*Giornale della R. Accademia di Medicina di Forma*, 1895, Nos. 3 and 4) describes the action of arecoline, a drug extracted from the nut of the Italian arec-tree.

Fröhner found some time ago that arecoline is the best sialagogue, being superior to pilocarpine, and that it equals eserine as a laxative.

Dr. Lavagna now reports that the instillation of a drop of a 1 per-cent. solution of the hydrobromate into the conjunctival sac causes a sensation of warmth, and afterwards some lachrymation and spasm of the eyelids. The irritation lasts scarcely more than a minute, and is followed by slight hyperemia of the conjunctiva and subcorneal injection, which disappear after some minutes.

After two minutes violent clonic spasms of the iris are produced and there is distinct diminution of the pupillary space.

The myosis is very noticeable after five minutes, and reaches its maximum in ten minutes. This maximum is maintained for twenty-five to thirty minutes, after which the pupil begins to enlarge, and becomes normal once more after about seventy minutes. At the end of ninety minutes the pupil is about one-half millimetre larger than normal.

Dr. Lavagna has not noticed any modifications in intra-ocular tension due to the drug.

Before acting on the iris arecoline causes a spasm of the ciliary muscle, which gives rise to increased refraction in the eye for the time being. (Translated by Dr. James J. Walshe.]

Oxycyanide of Mercury as an Antiseptic.

C. Monod and Magaigne (*Progrès médicale*, October 26) state that oxycyanide of mercury in 5 per 1000 solution displays in laboratory experiments an antiseptic potency always equal to, and often greater than, that of 1 in 1000 sublimate solution. It has no disadvantages other than those possessed by corrosive sublimate, and it has the special advantage of not affecting either the hands or the instruments of the surgeon. It may therefore replace sublimate in surgical practice. This conclusion is based on an experience of the use of the oxycyanide in hospital and in private practice of more than four years, and on laboratory experiments in which the power of the oxycyanide to prevent the growth of cultures, to kill a developed culture, and to sterilize contaminated substances has been tested and compared with that of sublimate. The experiments were made not on pure cultures of streptococci and staphylococci destitute of spores, but on dust from hospital wards containing bacillus pyocyaneus, bacterium coli, streptococci, and especially a bacillus resembling that of anthrax, with spores which resist a temperature of 100° C. No serious toxic effect was ever observed. The authors, however, recommend that the oxycyanide should not be used for washing out cavities, especially where there is a danger of any of the fluid being left behind. Monod and Magaigne mention that oxycyanide of mercury was first recommended as an antiseptic by Chibret.

OBSTETRICS.

UNDER THE CHARGE OF

BARTON COOKE HIRST, M.D.,

ASSISTED BY

RICHARD C. NORRIS, M.D., AND FRANK W. TALLEY, M.D.

Puerperal Eclampsia.

Zweifel (*Centralblatt für Gynäkologie*, Nos. 46, 47, and 48, 1895) reports his experience of 129 cases of puerperal eclampsia treated in the Leipzig Clinic, and contrasts those treated by the expectant method (before 1892) with those treated actively by Dührssen's plan of emptying the uterus as soon as possible. Forty-nine cases were treated by the former method, with a mortality of 32.6 per cent.; eighty by the latter method, with a mortality of 15 per cent. After a careful study of the 129 cases, Zweifel concludes by advocating the principle of immediate delivery by operation in every case of eclampsia, by dilatation with elastic bags, and when the cervix is already taken up, slight incisions into the os, or, in cases not so far advanced, by making extensive incisions into the cervix. As the amount of blood that may be lost after these incisions cannot be estimated, venesection, which is very useful when the fits persist after the child is born, especially when the pulse is of high tension, is, unless under the same condition of the pulse, hardly advisable before delivery, although the older authorities are agreed as to the surprising effect it has in accelerating dilatation. While nothing should be given to an unconscious patient to swallow, a proper sound may be used to introduce liquid nourishment, to siphon out the stomach when desirable, or to administer weak solutions of acetic, tartaric, or citric acid, which in extreme restlessness are most beneficial. Zweifel does not consider ether contra-indicated as an anesthetic. Either this or chloroform may be employed. Finally, he insists that a rigid asepsis is the more necessary, as infection favors the recurrence of the fits.

Causation of Eclampsia.

James P. Boyd (*Bulletin médicale dur Nord*, Lille, November 12, 1895) reviews the theories of the causation of eclampsia, and emphasizes the facts that it is not common in women the subjects of chronic kidney-disease before pregnancy; that where kidney symptoms are present they usually develop suddenly; that kidney lesions may be absent; that albuminuria is in many cases the effect and not the cause; that we must remember that the kidneys are not the only excretory organs whose failure to perform elimination properly may produce eclampsia; that ptomaine-poisoning should not be forgotten.

Concerning Primary Infection of the Amniotic Liquor after Premature Rupture of the Membranes.

C. Galtier (*Thèse de Paris*, 1895). The primary infection of the amniotic liquor is caused by micro-organisms, all the nature of which is not yet discovered. Under this head are grouped the streptococcus, staphylococcus, and bacterium coli. The infection produces changes in the consistence, color, and odor of the amniotic liquor, and often causes the formation of gas of fetid odor, even with living children.

It may spread with great rapidity after the rupture of the membranes, and may occasion severe secondary and often deadly infections for the mother and child. Galtier recommends the prevention if possible of an early rupture of the membranes and rigid antiseptic regulations to be observed even before the rupture.

A Hinderance to Birth, caused by the Cord encircling the Neck Seven Times.

Wygodzki, of Wilna, Russia (*Centralblatt für Gynäkologie*, No. 48, 1895), reviewing the subject, states that a single encircling of the neck by the cord is of frequent occurrence. A double loop around the neck is of rarer occurrence, and of much less frequence are the three loops.

The greatest number of loops in the literature are: seven (Baudeloque), eight (Credé), and nine (Gray).

Wygodzki reports a case occurring in his practice in which the cord encircled the neck seven times. The mother was a 20-year-old primipara. The last menstrual period was on May 10, 1894. The pregnancy progressed normally. On February 19, the movements of the child ceased, and on the next day—fully two weeks before term—the labor commenced. The labor was attended with strong expulsive pains, and although the product was small and the pelvis well formed little progress was made. By midnight the pains had become weak and the child was extracted.

The tightly-drawn cord encircled the head seven times and passed under the left shoulder. Child was dead and slightly macerated. Cord measured 168 centimetres.

Method for the Induction of Premature Labor.

Kufferath (*Congrès de Gynécologie de Bordeaux*, August, 1895) described a method for inducing premature labor in the later months of pregnancy. The neck of the uterus is fixed with a volsellum, and a glass canula attached to an irrigating apparatus is passed through the internal os and made to press lightly against the membranes. The lower uterine segment is then irrigated at low pressure, and the membranes thus separated in the neighborhood of the internal os without the position of the child being altered, and without causing pain if care be taken that the fluid escapes easily. The fluid used by Kufferath was sterilized water containing a little boric acid in solution, and the quantity employed varied from one to two litres. He had successfully adopted this procedure in fifteen cases, and claims that it is much more powerful and rapid than any other.

On the Danger of the Use of Polypus Forceps for the Removal of Retained Fragments of Placenta.

Dr. Alberti (*Centralblatt für Gynäkologie*, 505, 1895) reported, at a meeting of the Gesellschaft für Geburtshülfe und Gynäkologie at Berlin, a case of hemorrhage after abortion, in which the attending physician, after curetting, introduced a forceps into the uterus to remove some remains of the placenta. On withdrawing the forceps he found that he had dragged part of the intestine into the vagina. Alberti performed a celiotomy three hours later, and found the uterine wall thinned away in every part. The intestine which had been dragged through the uterus into the vagina was constricted at the internal orifice, and could not be returned until this had been slit in several places. The woman made a good recovery.

In the discussion which followed, Veit, Olshausen, Gusserow, and Orthman

reported cases almost identical which had occurred in their practice, not, as a rule, with the same good result. All agreed that the forceps was a most dangerous instrument. Martin mentioned a case in which a very busy practitioner, believing that although he had used a curette he still felt some membrane in the uterus, introduced a forceps and extracted about thirty inches of intestine, which he tore from the mesentery. Telling the family that this was the umbilical cord which had been retained, he left the patient in a state of collapse with his assistant and hastened for Dr. Martin. The latter found the woman in *articulo mortis* with the intestine between her thighs. The most he could do was to return the bowel into the abdomen and ask the attendant to report the events. The woman died in a few hours.

Martin also spoke strongly against the use of polypus forceps in such cases. Flaischlen had found them necessary and useful in cases in which the abortion occurred in a uterus fixed in retroflexion.

Precocious Pregnancy.

Gleaves (*American Journal of the Medical Sciences*, December, 1895) records the delivery of a living child, weighing five pounds, from a mother 10 years and 2 months of age. The mother had menstruated regularly since the age of 5 years, but had no other signs of development. The labor was uneventful.

Rigidity of the Parturient Cervix and Local Anesthesia in Labor.

Dr. T. H. Weagly (*Times and Register*, October 5, 1895) speaks highly of the results he has obtained in cases of rigidity of the cervix by the use of local anesthetics applied directly to the parts by means of a spray apparatus. He uses the following solution:

℞	Phenolized cocaine solution (3 per cent.)	f℥i.
	Trinitrin solution (2 per cent.)	♏ x.
	Sulphate of strychnia	gr. $\frac{1}{6}$.
	Listerine	f℥i. M.

He claims that this solution will expedite and soothe the first stage of labor, and that even when the occiput has entered deeply into the pelvis, by spraying the vaginal surface of the perineum and outlet, the pains accompanying the expulsion of the head may be reduced to a minimum.

The Double Uterus in Pregnancy.

Dr. Eustache (*Journal des Sciences médicales de Lille*, No. 40, 1895) reports the case of a woman pregnant for the second time and affected with leucorrhea since her first confinement. An examination with a speculum revealed a double os, one closed and the other dilated, with a flow of muco-pus from the latter. The abdomen was very prominent on the left side, and double uterus with pregnancy of the left side was diagnosed. This diagnosis was verified after the labor. Three days after the labor the patient experienced pain in the right half of the abdomen, and expelled a triangular membrane four centimetres in diameter, this being evidently the caduca formed in the right uterine cavity. Three successive pregnancies have since occurred alternately in the right and left segments. Each labor was followed on the third or fourth day by the expulsion of membranes from the non-gestating cavity.

Two Cases of Labor obstructed by Rigidity of the Vaginal Orifice.

Brindeau (*Le Progrès médical*, August 24, 1895) calls attention to the fact that delayed delivery in primiparæ is not due so much to rigidity of the perineum as to rigidity of the vaginal orifice. It is not uncommon to see the vulvar ring remain absolutely intact after labor, while on the other hand the vaginal orifice is always torn at the moment that the head is expelled. These facts were pointed out long ago by Matthews Duncan, and Budin, and render it easy to understand how, if the tissues at the vaginal orifice of a primipara are unduly rigid, spontaneous delivery becomes impossible. In two cases reported by Brindeau the vulvar orifice was elastic, but the birth of the head was prevented by the rigid tissues surrounding the vaginal orifice. In both the tough ring of tissue was incised with scissors, and almost immediately after this the head was expelled spontaneously. The incision commenced in the middle line, and was made to extend obliquely upward for about half an inch. After delivery it was closed with sutures.

GYNECOLOGY.

UNDER THE CHARGE OF

CHARLES BINGHAM PENROSE, M.D.,

ASSISTED BY

H. D. BEYEA, M.D.

The Endometrial Changes associated with Uterine Fibroid Tumors and their Relation to Uterine Hemorrhage.

Borissoff (*Monatsschrift für Geburtshülfe und Gynäkologie*, Band II, Heft 5) states that, notwithstanding the frequency and obstinacy of the hemorrhage which is associated with uterine fibroid tumors and that the hemorrhage not rarely endangers life, its cause has not as yet been explained. There has been very little investigation considering its pathological anatomy, and no investigation from a clinical stand-point. Wyder, in 1878, first announced that the endometrium was converted into diffuse adenoma, and in 1887 he reported twenty cases where he found interstitial endometritis. Campe found in ten cases chronic glandular endometritis with inflammatory change in the stroma tissue in one case. Schmal, in 1891, from the investigation of fifteen cases, concluded that atrophy of the endometrium occurred over the tumor and hypertrophy distant from the tumor. Finally Semb, with twenty-three cases, stated that no definitely characteristic changes could be determined. Borissoff's investigations were made upon twenty-one uteri. The results of the microscopical examinations was as follows: In the endometrium removed from the site of tumor there was atrophy with complete or partial destruction of the glands in 11, glandular endometritis in 3, interstitial endometritis in 5, and glandular and interstitial endometritis associated in 2. In 13 uteri it was possible to remove a portion of the tumor wall with the endometrium. In these sections atrophic change was seen in 7, glandular endometritis not at all, interstitial endometritis in 3, and glandular and interstitial endometritis in 3. The most pronounced change was always seen where there was an interstitial tumor. In two cases of subperitoneal tumor the entire endometrium had atrophied, and

in another there was glandular and interstitial endometritis. In many of the preparations every form of endometritis was to be seen. As regards the hemorrhage the following order was observed: Where there was menorrhagia, two cases, glandular endometritis was found in 1, and glandular and interstitial endometritis in the other. Where there was metrorrhagia, 11 cases, atrophy of the endometrium was found in 7, glandular endometritis in 1, interstitial endometritis with beginning sclerotic change in 2, and glandular and interstitial endometritis in 1. It was particularly noticed in the greater number of microscopical sections that beneath the superficial portions of the endometrium the blood-vessels were very much dilated and filled with corpuscles. This condition extended to the surface where there was atrophic change. Besides this a diffuse extravasation of blood was seen in all sections, most marked in the superficial endometrium but sometimes extending into the muscular wall. In most of the sections the superficial epithelial cells had disappeared. From these investigations he concludes that the hemorrhage associated with fibroid tumors of the uterus results as follows: That when the tumor reaches a palpable size a hyperemia of the uterine body occurs which sometimes results in a parenchymatous inflammation not unlike that seen in the ovary as described by Popoff and others. This first causes the menorrhagia, which usually appears before the tumor is diagnosed. As the tumor increases in size the circulation is more and more obstructed in the uterine wall and endometrium as shown in the description of microscopical sections. Under the influence of the circulatory obstruction the menorrhagia becomes progressively more profuse and persistent. As a further result of the obstruction the blood-vessels undergo structural change because of the increased blood-pressure or fatty degeneration, and they rupture. At this time the hemorrhages became most frequent, persistent, and severe, often requiring treatment. The extravasation of blood from the over-filled or degenerated blood-vessels of the endometrium cause the destruction of the superficial endometrium and allow the blood to escape into the uterine cavity. The extravasation of blood also explains the blood-tinged watery discharge so often seen. The increased size of the uterine cavity necessitating a wider area of diseased endometrium also helps to explain the hemorrhage. Why it is that in a few cases of interstitial fibroid tumor the menstrual flow is normal or absent is difficult to determine. Borissoff believes there is here some associated condition preventing hemorrhage as disease of the ovaries, general anemia, insufficient circulatory development, a misplaced uterus, etc.

Ferripyrin, a New Hemostatic in Gynecology and Obstetrics.

Schaeffer (*Centralblatt für Gynäkologie*, No. 2, 1896), gynecologist and obstetrician in the University of Heidelberg, advises the use of ferripyrin in gynecology and obstetrics, believing that it is more efficacious than any other preparation of the chloride of iron. Its special indications are as follows:

(1) As a simple hemostatic in all forms of hemorrhage from the genitals in which cauterization is not desired; in menorrhagia and metrorrhagia; also in operations associated with parenchymatous hemorrhage when ligature is impossible. In cases of endometritis when destruction of the superficial endometrium is required; also after curettement in those cases suitable for the application of the chloride of iron. It is here applied in a 16- to 18-per-cent. watery solution with an intra-uterine applicator.

(2) As a hemostatic when an associated astringent quality is desired; intra-uterine and vaginal douches, as in endometritis, to control the hemorrhage and act as a stimulant to the endometrium; also in metritis, as a method of depletion where there is excessive secretion. As an astringent vaginal douche in gonorrhea, colpitis,

and particularly where there is ectropion and inflammation of the cervical mucous membrane. It is here employed in a 1- to 1½-per-cent. solution. It may also be applied as a powder on a tampon or otherwise.

(3) It is applied as a powder in inoperable carcinoma of the cervix, as where the palliative destruction of the tumor-mass is no longer possible. It is here the only powder which relieves the pain, controls the hemorrhage, diminishes the discharge, and yet does not cauterize.

(4) In hematuria, in a 1- to 16-per-cent. solution, it controls the hemorrhage and relieves the tenesmus.

(5) In hemorrhage from the stomach, intestines, and melena neonatorum it is given by the mouth in the same doses as the liq. ferri sesquichlor.

A Conservative Operation upon a Closed Fallopian Tube followed by Impregnation.

Gersuny (*Centralblatt für Gynäkologie*, No. 2, 1896) reports the following very interesting case, describing a method of operation upon a closed Fallopian tube which allowed impregnation to take place. The patient was 25 years of age. Menstruation appeared at 17 years of age, and had always been regular. She had been married five years and had never conceived. She was admitted to the hospital for the operation of oöphorectomy, the removal of a tubo-ovarian cyst the size of a child's head from the left side. After removing the cyst, tube, and ovary, it was noticed that the uterus and right ovary were normal. The tube was of normal dimensions towards the uterus, and ended at the Fallopian extremity in a closed sac the size of a walnut. In the pelvis there were the signs of an old peritonitis. Considering the fact that the patient had been sterile and wished children, the following experimental operation was immediately decided upon: The tube-sac was incised upon the surface towards the ovary, a considerable quantity of thin, dark, bloody fluid escaping. The inner surface was seen smooth and covered by a thin layer of mucous membrane. The ovary was introduced into this opening in the tube and held in place by six fine interrupted sutures, which attached the ovary near the mesovarium to the edges of the incision. The ovary was thus almost entirely introduced into the tube-sac. This enclosure of the ovary in the tube-sac was an experiment with a doubtful result, yet it was quite positive that in ovulation the ovum must enter the tube, but there still remained the question whether the tube in relation with the uterus was patent. If the tube was not patent, then the operation would be useless, but if, on the other hand, there was an opening between the tube and uterus, or the tube later became patent, conception was possible, but perhaps tubal pregnancy would result. Still another question to be considered, which must continue unanswered, was, What effect would the placing of an organ which floats freely in the peritoneal cavity into a sac covered with mucous membrane have upon that organ? All of these questions can only be answered through experimentation on women. The writer believes this experimentation is justifiable, since so many sterile women would be willing to undergo even the most dangerous operation if there was any hope of finding and correcting the cause of their sterility. Again, the only danger which could have resulted from the described operation was the possibility of tubal pregnancy resulting. The further history of the patient was as follows: Three weeks after the operation (April 30, 1895) she left the hospital in good health. In the beginning of June she menstruated for the first time; again in the beginning of July and August, and then no more. On November 25 she stated that she was in good health, but that her breasts had increased in size and she had

noticed that the girdle of her dress had become uncomfortably tight. On examination at this time the uterus was found to be the size of a large orange, the fundus reaching above the symphysis. The cervix was short, and nothing abnormal could be found in the pelvis. It was therefore a normal pregnancy in the middle of the fourth month.

The Radical Treatment of Carcinoma of the Uterus.

Jacobs (*Annales de l'Institut Ste. Anne*, 1895, No. 2) believes that vaginal hysterectomy is the best operation for the cure of uterine carcinoma; that other methods are very rarely indicated. The contra-indication for operation is when the disease has extended to other organs. The age of the patient is also important. When under 40 years of age hysterectomy should be performed only when the disease is in the beginning stage; after 55 years the progress of the disease is so slow that quite as good results are gained by the palliative as the radical treatment. Of forty-six cases operated upon, six are well, twenty-two have a return of the disease, six have been operated upon only a short time, and ten have died. Of seventeen cases who were under 40 years of age, only one is without return one year after operation.

PATHOLOGY.

UNDER THE CHARGE OF

JOHN GUITÉRAS, M.D.,

ASSISTED BY

JOSEPH McFARLAND, M.D.

Weigert's Neuroglia Stain.

Weigert (*Beiträge zur Kentniss der normalen menschlichen Neuroglia*) gives the following method for demonstrating its tissue elements by staining:

I. *A mordant and fixing solution* prepared by dissolving by boiling

Chromic alum	2.5
Water	100.0

After turning out the flame, add

Ordinary acetic acid	5.0
Finely pulverized neutral cupric acetate	5.0

Stir the mixture well. After cooling the solution, 10 per cent. of formol is added.

Portions of the nervous tissue to be examined should be cut into bits not larger than one-half-centimetre cubes and allowed to remain in the solution for at least eight days. A longer immersion does no harm. The tissue is subsequently washed in water, dehydrated in alcohol, and embedded in celloidin.

II. *Reduction.* The sections when cut are immersed for about ten minutes in a ½-per-cent. solution of permanganate of potassium, washed carefully inwater, and then brought into the filtered reducing [or differentiating] solution,—

Chromogen	5.0 per cent.
Formic acid	5.0 per cent.
Water	100.0 per cent.

This solution before each using must be mixed with a 10-per-cent. solution of sodium sulphite in the proportion of ninety parts of the former to ten parts of the latter.

The sections are deprived of the brown color of the permanganate of potassium by this solution in ten minutes.

III. *Staining.* The staining is a modification of the author's "fibrin stain."

(1) The stain used is methylviolet in a saturated alcoholic solution made with hot alcohol (70 to 80 per cent.), decanted from the precipitate when cold. To 100 cubic centimetres of this stain five cubic centimetres of a 5-per-cent. aqueous solution of oxalic acid are added.

(2) The iodine-iodide-of-potassium solution is the same as in the fibrin method, —a saturated solution of iodine in a 5-per-cent.-iodide-of-potassium solution in water.

(3) The aniline-oil-xylol solution consists of equal parts of the two ingredients.

The staining is accomplished upon the slide. The sections are spread upon the slide free of folds. The staining takes place almost instantaneously, a prolonged action of the stain doing no harm, but being useless. The aniline oil must be most painstakingly washed out of the section with pure xylol before it is enclosed in balsam, else the specimen will not keep well. The sections keep better when allowed to lie exposed to diffused daylight for a few days (two to five days).

So far the staining of the neuroglia cells has only been successfully accomplished upon the human tissues. The method will not be successful for animal tissues.

The Serum Treatment of Syphilis.

Barling (*British Medical Journal*, February 8, 1896) reports the case of a man suffering from a phagedenic chancre to whom injections of *antisyphilitic serum* were given. The result attained by the injection of ten cubic centimetres in divided doses is extraordinary. The first injection, of one cubic centimetre, was without effect. The second, of two cubic centimetres, made the man feel ill in about two hours, the ill feeling passing off in an hour. There was distinct redness and increased swelling around the chancre. The next dose, of three cubic centimetres, brought the temperature, which had been 99.2° F., to normal. The next dose, given the next day, was four cubic centimetres. Since, the chancre has not spread, the edges are clear of slough, the patient feels "all right." His temperature in the evenings is normal. The secondary eruption is all gone, and the slough separated by the next day. Subsequently the wound healed nicely, and had gained in weight at the end of a fortnight. In the writer's view the serum seemed to exert a distinct beneficial effect.

[It may be well to add that before the injection of the serum, from November 30 to December 18, the patient had been taking hydrargyri cum creta, and that the local lesion was treated antiseptically.]

Hypoleucocytosis in Acute Tuberculosis.

Warthin (*Medical News*, January 25, 1896) has studied the blood of two cases of acute general miliary tuberculosis, and found that his frequent estimations of the number of leucocytes confirms the statement of Cabot that the blood does not give us any aid in the diagnosis between typhoid and acute tuberculosis. In both cases there was pronounced hypoleucocytosis.

MEETING OF THE MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA.

The next meeting of the Medical Society of the State of Pennsylvania will be a three-day session, beginning on Tuesday, May 19, 1896, at Harrisburg, Pa. Those wishing to read papers should send the titles to the chairman of the committee, F. Le Moyne, M.D., Pittsburg, Pa., as soon as possible, and not later than March 19, 1896. It is requested that papers be so condensed that they may be read in ten minutes, and that each discussion shall be limited to five minutes.

CORRESPONDENCE.

CASTRATION FOR PROSTATIC HYPERTOPHY.

To the Editors of the University Medical Magazine.

Dear Sirs: The following letters, recently received, are examples of a number of others very kindly sent to me. I have thought perhaps they would be of interest to the readers of the Magazine.

Very truly yours,

J. William White.

U. S. Naval Hospital, Washington, D. C., February 5, 1896.

Professor J. William White, M.D., Philadelphia.

Dear Sir: I send you the following memorandum of a case recently under treatment in this Hospital, in which the testes were removed by Dr. G. M. Pickrell, United States navy, on account of chronic hypertrophy of the prostate.

The patient was a man, aged 66 years, who had suffered a long time from the symptoms usual in this disease: frequent and difficult micturition, requiring the use of the catheter many times daily; distressing local pains, disturbing sleep and making life a burden; urine loaded with pus and mucus, etc.; and corresponding disturbance of the digestive functions. He was eager for anything which gave promise of relief.

On November 1, 1895, the testes were removed, under ether. The beneficial results were manifest from the first day, in a general amelioration of symptoms. On the second day fourteen ounces of urine were passed voluntarily. Then the cure was interrupted by an intercurrent malarial attack for some days, after which he went on steadily to recovery, with palpable diminution in size of the prostate. He was discharged by his own request on January 18, with no pain from micturition, no need of catheter, and with the urine almost normally clear, while the general condition was excellent. I have seen him recently, and he appeared excellently well satisfied with himself and with his treatment.

Very truly yours,

George A. Bright, M.D.,

Medical Inspector, United States Navy.

STAUNTON, VA., February 6, 1896.

DR. J. WILLIAM WHITE, Philadelphia, Pa.

Dear Sir: I desire to report to you the following case as bearing on your valuable operation for prostatic enlargement:

Mr. J. T. P., white, aged 61 years, was referred to me for operative treatment by Dr. J. M. Hanger, of this town, during the first part of August, 1895. The diagnosis was hydrocele, which I tapped and injected carbolic acid and glycerin. The testicle on that side (left) appeared enlarged to about twice the normal size. The fluid rapidly accumulated to its former extent, and on August 23 I opened the scrotum and found a loose body of yellow color, about two inches long. It seemed fatty and also contained several small cysts. I removed this and also the testicle, which was cystic.

A rectal examination at this time showed a prostate considerably enlarged. The patient complained of difficulty of urination, and had to empty his bladder several times during the night. He had never been compelled to use a catheter.

On November 24 I made a rectal examination and found the prostate gland considerably smaller, especially on the left side. The patient also says that he has now very little trouble in urinating, and does not, as a rule, have to empty his bladder after bedtime. He has had syphilis, but is apparently cured.

If you wish any further information in this case, I will be very glad to give it.

Yours truly,

J. SHELTON HORSLEY.

WADSWORTH HOSPITAL, LOS ANGELES, CAL.

DR. J. WILLIAM WHITE, Philadelphia, Pa.

My dear Doctor: I have another case to report to you. It will appear in full in the *Bulletin*. Now I will merely give two salient points of the case. It bids fair to be a perfect success.

(1) Two weeks after operation it was decided that the patient had dilated ureters and, perhaps, kidneys. Reason for this belief: after washing out bladder with extreme thoroughness, there would come a sudden gush of from two to four ounces of thick muco-pus, but slightly mixed with urine.

(2) About two weeks after operation patient gradually became comatose, with almost complete suppression of urine. It looked for three days as if we were about to have another of those melancholy notes to put in the record,—death from uremia. His life was saved by the most heroic treatment,—mainly by the use of immense hypodermic and rectal injections of normal salt solution.

Why is it that uremia is so common after operations? The patient seems to be doing well; the kidneys work well for several days, when suddenly there is coma and soon death. I must confess I feel greatly puzzled. It seems hardly fair to blame the anesthetic. In this case, for example, the kidneys worked nobly for two weeks.

Yours truly,

F. L. HAYNES.

BOOK NOTICES.

An American Text-Book of Surgery for Practitioners and Students. By Charles H. Burnett, M.D., Phineas S. Conner, M.D., Frederic S. Dennis, M.D., William W. Keen, M.D., Charles B. Nancrede, M.D., Roswell Park, M.D., Lewis S. Pilcher, M.D., Nicholas Senn, M.D., Francis J. Shepherd, M.D., Lewis A. Stimson, M.D., William Thomson, M.D., J. Collins Warren, M.D., and J. William White, M.D. Edited by William W. Keen, M.D., LL.D., and J. William White, M.D., Ph.D. Second Edition, carefully revised. Philadelphia: W. B. Saunders, 1895.

The first edition of this work received immediately the stamp of professional approval. Its creation was the result of a very general feeling that the revolutionary changes in surgery in recent times demanded the presentation of the subject from an entirely modern stand-point, and the authors determined that this demand should be satisfied. That they succeeded in this task is evidenced by the extraordinary sale of the work both in this country and abroad, and by the fact that it has been adopted as a text-book in upward of sixty medical schools.

In the present edition a number of topics have been added to the text, while many chapters have been expanded in order to embody the progress in surgery during the three years that have elapsed since the work was first issued.

The plan of the work remains the same as in the first edition, an outline of which was given in the review in the October, 1892, issue of this Magazine. Among the additions noted are: the effect of modern small arms in military surgery; a new section on acromegaly; the Hartley-Krause method of removing the Gasserian ganglion; the osteoplastic method of resection of the skull with a number of additions to operations and methods in endocranial and spinal surgery; in the surgery of the chest, a description of Schede's operation; in the surgery of the digestive tract, Witzel's method for gastrostomy; the use of Murphy's button in intestinal anastomosis; the consideration of retroperitoneal tumors and of castration for enlarged prostate; a chapter on symphyseotomy; Macewen's method of compressing the aorta in amputation at the hip-joint, and the additions to sections dealing with fractures and dislocations, appendicitis, the radical cure of hernia, excision of the breast, etc.

The status of White's operation—the removal of both testicles for hypertrophy of the prostate gland—is here placed before the profession. A review of the cases thus far reported justifies the statement that "double castration seems to be the operation which comes into direct comparison with the various forms of prostatectomy,

and it may safely be said that it is likely in properly-selected cases to have a lower mortality, is far easier of performance, requires a much shorter period of anesthesia, and when fully successful secures a return to a condition more closely resembling the normal than any of the other operations looking towards a radical cure of the hypertrophied prostate.

This conclusion has been abundantly verified by the reports of the cases so far operated upon. The statistics will doubtless show a much larger percentage of cures in the future, when the proper selection of cases for the operation is better understood. Such diseases of the prostate as carcinoma, tubercle, abscess, etc., would not be improved by castration, nor could we expect any treatment to succeed in the presence of an advanced stage of surgical kidneys and a rapidly-developing uremia; yet such cases have been subjected to this operation, necessarily, in most instances without successful results.

Castration, it is said, will prove of value in the following classes of cases: (1) in reducing bulky overgrowth of the prostate; (2) in controlling the distress and danger of an inflamed, senile, enlarged prostate; (3) in lessening the frequency or difficulty of introducing the catheter in advanced or confirmed catheter life; (4) in avoiding the mechanical difficulty of crushing a post-prostatic or a post-trigonal stone by levelling the base of the bladder, thus rendering the operation of litholapaxy feasible in a condition in which it was before impracticable, and (5) in reducing chronic cystitis and recurrent phosphatic calculus in cases of confirmed catheter life.

It is also stated upon experimental evidence that ligation of the vasa deferentia, while producing but little effect on the testicle itself, causes a decrease in the size and weight of the prostate.

There is no subject more prominently before the profession today than appendicitis. We naturally turn to this subject, therefore, for the most recent views regarding this common affection and authoritative statements concerning its treatment. The great frequency of inflammation of the appendix is explained upon embryological and anatomical grounds. The symptoms of the disease are described, and reasons given for each of them. The only condition likely to be mistaken for the mild cases of appendicitis is stercoral typhlitis, "a condition which has been so overshadowed during the advance of our knowledge in regard to appendix disease that we are in danger of acting as if it were non-existent." The medical treatment of appendicitis, it is said, should aim at the prevention of perforation and at giving the peritonitis a plastic character. Therefore, during the incipient stage, saline cathartics in such doses and at such intervals as to secure early and free evacuation of the bowels, are recommended.

We are told that if the inflammation does not yield to the measures described, judicious *surgical* treatment will become necessary.

Regarding the cases in which the inflammation has resulted in the formation of a circumscribed abscess in the right iliac fossa, the writer very properly advises against "persistent search for the ap-

pendix and attempts at its removal" in the instances in which "it is bound down by adhesions in the depth of the wound." Such interference is attended with so much danger of opening the general peritoneal cavity that the procedure is to be condemned. It is proper, of course, to effect its removal, when this can be accomplished without endangering the life of the patient, but as the author states, "If the peritonitis has become limited, it must be the great object of the surgeon to reach the abscess and to remove its primary cause without invading the general peritoneal cavity, and on this account the utmost care must be exercised not to penetrate the abscess wall on the peritoneal side during the search for the appendix and its removal." It is a question of either saving the life of the patient or performing an "ideal" operation from the stand-point of the surgeon, and both the conscientious members of the profession and the unfortunate victims of appendiceal abscesses will not be slow in deciding in favor of the former.

The additions to the chapters on the surgery of the head, of the spine, of the female generative organs, and fractures and dislocations are particularly noticeable, and bring the text fully abreast of the times. The other sections, to which allusion has been omitted for want of space, have not been neglected, but show a careful revision. Advantage has been taken of the opportunity to remedy the slight imperfections inseparable from all first editions.

We cannot better express our appreciation of the present work than to quote from the review of the first edition, which said, "It is recommended to surgeons and students as representing better than any other book surgery as it is practised in this country to-day."

The mechanical execution of the work is of the highest order. It is a great comfort to the reader to have the pages lie flat at whatever point the book may be opened.

Disorders of the Male Sexual Organs. By Eugene Fuller, M.D., Instructor in Genito-Urinary and Venereal Diseases in the New York Post-Graduate Medical School, etc. Philadelphia: Lea Brothers & Co., 1895.

The title of this work is rather misleading; at least it was so to the reviewer; for, while it gives one the impression that the book is a treatise on the various diseases of the male sexual organs, it is really a monograph on "seminal vesiculitis." Other disorders are mentioned only to point out their similarity or dissimilarity to diseases of the seminal vesicles and to make the picture of these affections more impressive.

The author holds the opinion that many of the cases heretofore considered as psychoses, or as neuroses, were really veritable pathological conditions of the vesiculæ seminales.

Considerable space is devoted to the anatomy of the parts concerned. A chapter on physiology follows.

The changes due to inflammation of the seminal vesicles are the chief pathological conditions considered. As a result of these changes the author says, "The contents of the vesicles may lose in great measure their liquid qualities, becoming thickened and gelatinous, the walls of the ejaculatory ducts may grow inelastic and unyielding, the walls of the main cavity of the vesicle may become dense and rigid, etc., which changes interfere with the act of ejaculation." Three forms of inflammation are noted,—viz., simple, gonorrheal, and tubercular. Of these, the gonorrheal predominates in frequency.

The symptomatology of the disease appears very complex, and embraces the local manifestations due to the inflamed vesicle as well as those of a reflex and neurotic origin.

The most accurate estimation of the nature and extent of the affection is obtained by digital examination per rectum.

The most important element in the treatment of subacute or chronic vesiculitis, the varieties most frequently met with, is "stripping" the vesicle, as it is called. This is accomplished by introducing a finger into the rectum and making pressure on the vesicle from behind forward, so that the contents are expressed and emptied into the urethra.

Dr. Fuller has evidently devoted considerable thought to the subject of seminal vesiculitis. His book is very interesting, and shows that too little attention has been given to this disease by most writers. The subject is comparatively a new one, and the views expressed need further confirmation by a wider and more general experience.

Local Anesthetics and Cocaine Analgesia: Their Uses and Limitations. By Thomas H. Manley, A.M., M.D., New York. St. Louis: J. H. Chambers & Co.

The author states in the preface that he has employed cocaine as a local analgesic for the past six years. The work is founded upon this experience. While admitting that the use of cocaine may not be entirely free from danger, Dr. Manley states that he has never observed any ill effects following its application. The drug has had a wide range of usefulness in Dr. Manley's hands. In addition to its employment in minor surgical operations, he advises its use in suprapubic cystotomy and in celiotomy for strangulated hernia. The high mortality that attends operation for the latter the author attributes largely to the effect of the ether. He believes that under cocaine analgesia the statistics would be materially improved.

The technique of cocaine and other local anesthetics is described, and the method of the application of the former to the various regions of the body is detailed.

Comparatively few surgeons have been willing to employ cocaine to the extent advised by Dr. Manley. It does seem to induce alarming symptoms and death in rare instances, and the majority of surgeons have felt that ether was more generally to be depended upon, reserving cocaine anesthesia, of course, for selected cases.

SPECTACLES AND EYE-GLASSES: THEIR FORMS, MOUNTING, AND PROPER ADJUSTMENT. By R. J. PHILLIPS, M.D., Adjunct Professor of Diseases of the Eye, Philadelphia Polyclinic and School for Graduates in Medicine; Ophthalmic Surgeon to the Presbyterian Hospital in Philadelphia, etc Second edition, revised, with forty-nine illustrations. Philadelphia: P. Blakiston, Son & Co., 1895.

This little work has received a second revision, and has been improved by the adoption of the more recent method of numbering prisms, and by the insertion of several new illustrations to elucidate the text. The work has doubtless helped many to a better understanding of a subject too much neglected by our oculists. All teachers and text-books urge the practice of having the glasses ordered examined before being worn by the patient, yet few give adequate instruction in the mechanical and optical construction of the result of their finding in seeking ocular insufficiency. This work is well presented.

STUDENTS' AID IN OPHTHALMOLOGY. By GERTRUDE A. WALKER, A.B., M.D., Clinical Instructor in Diseases of the Eye at the Woman's Medical College of Pennsylvania. Forty illustrations and colored plate. Philadelphia: P. Blakiston, Son & Co., 1895.

We must repeat the oft-expressed doubt of the possibility of a work of this scope filling the place to which it aspires. The student who has no other information than that contained in the much abridged works on the eye is hardly in a position to profit by the clinical study of cases, or to be greatly aided in his endeavor to recognize a given disease from the brief statements presented. The grouping of diseases and symptoms followed by the author is good and will aid the student to fill in his notes, but a complete dependence on a manual of this kind will leave him with but a scant knowledge of many of the most common ocular affections. Brevity in a number of instances has been secured at the expense of clearness, notably on page 14, in the directions for taking the tension of the eye. The book is well printed.

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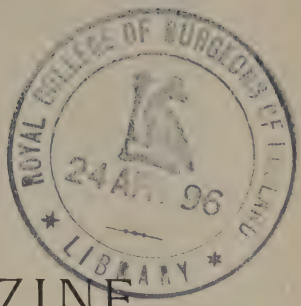

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CLINICAL OBSERVATION THE FOUNDATION OF PRACTICAL MEDICINE.[1]

By Alfred Stillé, M.D., LL.D.,

Philadelphia,

Professor (Emeritus) of the Theory and Practice of Medicine in the University of Pennsylvania.

Gentlemen: The title of the address I shall have the honor of delivering to you is Clinical Observation the Foundation of Practical Medicine. It is only an English rendering of the old Latin adage,—*Ars medica tola est in observationibus.*

A satirist has defined therapeutics to be the art of introducing a medicine of which we know little into a body of which we know still less. And while this satire or sneer has a certain substantial foundation, it affords no reason for distrusting, and still less for discarding, the healing art. This art has too venerable a history, too august a rank in human knowledge, too beneficent a power to be treated with indignity. Its imperfections, its errors, its very follies, mischances, and mischiefs are no more to be cited for its condemnation than the accidents that befall men in their legitimate occupations should cause them to be abandoned, or the poisonous effects of certain foods eaten out of season, or without due culinary preparation, or by persons of special idiosyncrasies, should induce mankind to cease from eating altogether. We show no disrespect, then, to the art of medicine when we point out its shortcomings and ridicule those who have such blind faith in its power that they employ its agents without reason and impute to them many results which they have had no share in producing. Such persons possess so little of the logical faculty that they are apt to ascribe to the action of some medicine (and usually to

[1] An address delivered before the Medical Societies of the University of Pennsylvania, January 22, 1896.

the last one invented by chemists to plague clinicians) the greater part of the phenomena that really belonged to the natural course of the disease. These physicians are apt to pique themselves upon their scientific accomplishments, and yet are too often blind to one of the most elementary requirements of science, the power of distinguishing between real and merely apparent causes. It is, indeed, a power most rare among therapeutists as well as one most difficult to exercise, so strong is the tendency of human nature to take to itself the credit of all the good that arises under the operation of natural laws. The history of medicine, both ancient and modern, is full of illustrations of this statement.

Only those whose province it is to collect, assort, and compare the erroneous statements which in every age have been published as facts can form an idea of the prodigious number of them out of which have grown false theories and erroneous methods of treatment. They were founded, not on clinical experience, not on well-proven facts, but upon an inaccurate observation of facts and untenable deductions from them. Judging from historical and personal experience, it would seem to me almost impossible for clinicians to keep apart from each other facts and their explanations, or facts and theories. They constantly mingle and confound them, although nothing can be plainer than that while accurately observed facts have a divine immortality, and are the same yesterday, to day, and forever, the theories which systematize and explain them are never absolute and are usually ephemeral. To one who has diligently studied, and in a candid spirit, the causes, phenomena, and effects of diseases, it is saddening to observe how few physicians pursue a logical course in describing and treating them. Instead of merely stating what actually is, they expend their time and ingenuity in demonstrating what in their opinion ought to be, and so compel the facts to accommodate themselves to the theory instead of rejecting every theory that is not solidly built upon facts. If this were done, it is probable that fewer medical books would be printed, and that having more solid stuff in them they would live longer lives. Instead of the loose, flabby, and therefore short-lived works that now come unneeded and undesired and die early and unlamented, there would arise a generation of robust treatises which would not only have a reason for being, but also reasons for living, and perchance for standing in the same galaxy that shines with the names of Sydenham and Harvey.

One of the most striking examples of combined error and fraud is furnished by a delusion and imposture which, having been vomited forth by the educated and scientific physicians of Europe, has been greedily devoured by many ignorant or dishonest practitioners in

America. What has been said of another form of imposture is applicable also to this : "The greedy haste to swallow any form of quackery while neglecting truer and better-grounded expositions, the curious pleasure taken in mysticism and the no less curious aversion from the calm distinctness of science, all point to a state of mental confusion which argues ill for the future, and which certainly proves the present to be unsatisfactory. There is nothing which average people dislike more than precision of thought, the logical genesis of opinion, the root-work of a creed, nothing delights them so much as picturesqueness of statement irrespective of its truth,—and irreducible by logic or reason to anything resembling common sense."[1]

Skoda, one of the most eminent clinicians of Vienna, compared the results of his simple expectant treatment of acute diseases in his own hospital with those of the Hahnemannian method pursued in the homeopathic hospital at that time in Vienna, and found his own results were more favorable than those of his would-be rivals. Since then a similar test has been applied in other countries and always with the same result,—viz., that the use of active medicines should be restricted to cases in which nature appears to be incompetent to the cure, and that even then they should be employed with extreme circumspection, lest what is intended to do good should either hinder the operations of nature or inflict positive injury. How often does it not happen that opiates are prescribed to relieve a particular symptom which it tends to aggravate, or even to develop another, as when it is used to check a diarrhea, and in doing so imprisons in the bowels the irritating body which caused the diarrhea ; how often does it dull the senses so that a concealed hernia remains undetected ; how often is its utility lessened by its impairing the appetite and digestion and unnecessarily causing a torpor of the mind and senses. Not many years ago narcotic doses of opium were proclaimed by respectable authority to be the most perfect cure for puerperal peritonitis, and then of some other forms of this affection, and it enjoyed no small vogue for a time, and until it became evident that the drug only stifled the disease, and sometimes the patient, without curing either.

These errors and accidents are peculiarly apt to occur in the practice of young physicians who yield to the temptation to quiet the patient's suffering and cries by the readiest means at hand. You are all acquainted with the mischiefs which ergot tends to occasion in the parturient mother and her offspring ; of the shocking conse-

[1] E. L. Linton, The Fortnightly Review, September, 1894, p. 457.

quences of the abuse of mercury, not only in syphilis, but in various inflammatory diseases, notwithstanding the apparently logical arguments to prove mercury a specific remedy for inflammation. It is not many years since enormous amounts of quinine were consumed in the treatment, not only of malarial and other periodical diseases, but in every other malady, from a transient headache or indigestion up to pneumonia, typhoid fever, and in a host of other diseases functional, febrile, and inflammatory. At last the medicine came to be regarded as a panacea, and was used by the laity without medical prescription. Now it tends to be relegated once more to its proper place, and has almost ceased to be the hobby of pseudo-scientific physicians. Still more perilous examples of the effects of what is often called seriously, but might be called derisively, "rational therapeutics," is to be found in the steady onward march of the army of medicinal antiseptics, anodynes, soporifics, and narcotics, sedatives of the arterial and nervous system, issuing from the laboratories of chemists and invading every land. Many of them are such sedatives of vital power as to threaten life chiefly through the brain and the heart. Very few of them can be regarded as necessary additions to the materia medica, while the greater number are dangerous as well as superfluous. I have no desire to discredit the recent advances in therapeutics, but I am too solicitous for the honor of rational medicine and its substantial progress to countenance or sympathize with the present tendency of the profession to grasp at the will-o'-the-wisps of false therapeutical science and loose its hold upon the solid acquisitions of the healing art.

While it is the duty of all who are entitled by education and experience to warn the young and inexperienced against the temptation to rely unduly upon medicinal treatment and forget the part that nature plays in every cure, it is no less incumbent upon them to declare with equal emphasis that the physician's office is no sinecure; that he is no mere spectator of the conflicts between the physiological and pathological forces that contend for victory in every case of disease. On the contrary, he is enlisted, with all his scientific knowledge, all the experience of others added to his own, all the skill which a sound and enlightened judgment and a humane interest can bestow, enlisted, I say, for the defence and rescue of the suffering. If it is possible (and sometimes it is so) by a single stroke of his art to put an end to the conflict, he is bound to exert that power at once and with whatever skill and judgment he possesses. But such instances are comparatively rare, and the physician is less frequently called on to combat death than the thousand minor ills which render life painful or unprofitable, and it is on his success in treating these affections

that his reputation will chiefly depend. The confidence the physician inspires, however he may secure it, is hardly the least efficient ingredient of the prescriptions he employs. And the less he feels obliged to employ active and perturbative treatment, the more he respects the restorative powers of nature, the surer he may be that his patients will have faith in his skill when he encounters those grave cases of self-limited diseases, which he knows that he can neither arrest nor materially abridge. Then it is that he may confidently rely upon his patient's faith in his discretion if he abstains from the use of active drugs, which are generally useless and are likely to be mischievous, and yet does not fail to employ whatever seems to him necessary to avert death and guide the disease to a happy issue.

It is, however, true that in the practice of medicine, as in every pursuit in which we deal with all sorts and conditions of men, we cannot always speak or act rationally in the face of ignorance, prejudice, or superstition. We sometimes are obliged to veil the truth, to lend our patients colored spectacles, to gild the pill or hide its composition under a sonorous name, yea, even to find a substitute for the crude truth if thereby we may restore health or preserve life. To quote the wise Sir William Temple, "It is true that physicians must be in danger with the vulgar; if they would tell a patient he has no need of physic, and prescribe only rules of diet or common use, most people would think they had lost their fee; but the excellence of a physician's skill and care is discovered by resolving first whether it be best in the case to administer any [particular] physic or none, and trust to nature or to art; and the next to give such prescriptions as if they do no good may be sure to do no harm."[1]

This sensible and salutary counsel, given more than two centuries ago, has been justified by the experience of all time, however it may have varied in its application with successive generations. Quite recently I have read of a young physician who received this homely admonition from his gardener, "Drugs, says you to a sick person, ain't a-going to make you well, and drugs you sha'n't have. What follows? Why, that sick person sends for old Jennings, who gives him pills and potions to his heart's content. 'Now I've got something for my money,' thinks he. Your way may be the right way, but you didn't ought to have said so,—no, that you didn't! Bread pills and harmless mixtures o' many colors you should have given him, sir, and kept your patient. It does really grieve me to see you losin' fine opportunities through sheer foolishness."[2]

There also was, and there still exists, a class of physicians who

[1] Works, III, 292.
[2] W. E. Norris in Matthew Austin, p. 9.

practise "meddlesome medicine," and who so overload their guns against diseases as to feel sure that out of the many pellets they discharge some must surely take effect. They remind one of the picture in "Dr. Syntax,"[1] of the Country Doctor,—

"His words were grave, his looks were thought:
By the bedside he took his stand,
And felt the patient's burning hand;
Then with a scientific face
He told the symptoms of the case:
'His frame's assailed with feverish heats;
His pulse with rapid movement beats;
And now I think 'twould do him good,
Were he to lose a little blood:
Some other useful matters too.
To ease his pain I have in view.
I'll just step home, and in a trice
Will bring the fruits of my advice.
In the mean time his thirst assuage
With tea that's made of balm or sage.'
He soon returned,—his skill applied,—
From the vein flowed the crimson tide,
And, as the folks behind him stand,
He thus declared his stern command:
'At nine these powders let him take;
At ten this draught,—the phial shake;
And you'll remember at eleven,
Three of these pills must then be given;
This course you'll carefully pursue,
And give at twelve the bolus too:
If he should wander in a crack
Clap this broad blister on his back;
And after he has had the blister
Within an hour apply the clyster.
I must be gone, at three or four
I shall return with something more.'"

It is to be feared that the race of physicians satirized in these lines is not extinct even now, more than a century since they were written. It is a more long-lived and far more numerous race than that of the really wise, who have learned that it is easier to beguile the sick than to persuade or convince them.

If any one desires to learn how wide-spread was the custom among medical men a century ago of taking the cure of disease out of the hands of nature and intrusting it to the physician and apothecary, he would do well to read the history of the great orator and statesman "Mirabeau's Last Illness," as it is recorded by his physician Cabanis.

[1] Dr. Syntax, In Search of the Picturesque, Canto x, p. 37.

The method of the English country doctor was innocent and trivial by comparison.

The chief disease of the illustrious Frenchman (although it was not detected during his life) seems to have been a chronic pericarditis with angina pectoris. The following is a synopsis of the medicinal tortures through which he passed. It began with venesections to the extent of eighty ounces in two days; which were followed by corrosive sublimate baths, and by blisters on several places near the head; by a cautery or issue near an inflamed eye; by "mild sudorifics, diuretics, and purgatives, and depurative and tonic mineral waters." When colics supervened, emetics and saline purgatives were administered, and mercurial frictions applied to the swollen glands of the neck. For the anginal attacks the remedies were warm baths and purgatives. As the patient's strength declined and the paroxysms of angina grew severer, venesection from the foot was practised, and large blisters were applied to the calves of the legs and sinapisms lower down, and these were renewed on each recurrence of the paroxysms along with the agents previously employed, and camphor was given internally. A few days later poultices containing cantharides and mustard were wrapped around the feet and saline laxatives were administered. Even then the illustrious patient was not allowed a chance to live, but leeches were applied to his chest, bleeding from the foot was repeated and cantharidated sinapisms were applied where the skin had previously been blistered, as well as fresh blisters upon the thighs. Musk was then administered, and Peruvian bark which aggravated the symptoms, blisters were laid upon the arms and camphor administered in half-hourly doses. As these blisters failed to vesicate stronger ones were substituted. In the whole course of the agonizing disease not a particle of any narcotic was administered. To such treatment no other term than brutal is fitting.

The polypharmacy and meddlesome medicine satirized in the poem and described in the narrative I have quoted appears to us both mischievous and ridiculous; but may we not say "*mutato nomine, de te fabula narratur?*" Are we less obnoxious to satire than our English and French ancestors were a century ago? Have not we, too, specifics for every condition and symptom, and often a long list of them for each? Our antipyretics and analgesics and antitoxins, our excito-motors and sedatives of arterial or nervous action, our agents to increase or lessen the activity of individual organs, or to stay the microbean army which has taken possession of our teachers' brains, if not of our patients' bodies, and which we are taught is the cause of all our woes,—these articles of the contemporary creed oblige one to doubt how much, if at all, the therapeutics of to-day are in advance of

those that prevailed a century ago. It has come to pass that the patient is regarded as a musical instrument on which the physician may play what tunes his theories prescribe, and if the patient meanwhile succumbs,—so much the worse for the patient. *Requiescat!*

It is related that the ancient Persians prayed "for that understanding that goeth on growing and that cometh not through learning," and this I take to be common sense. But the therapeutists of the present day seem rather to have chosen for their guide a saying attributed to an eminent physician of this city at the close of the last century: "Turn nature out of the sick-room as you would a meddlesome nurse." Surely of such physicians one may say, "Much learning hath made them mad."

Man's pride, or, rather his self-conceit, impels him to usurp the place of nature which he fills very imperfectly. She is slow and gradual in her operations, but her work endures; while man tends everywhere to reach his ends by the shortest and quickest road, and with too little regard for its certainty and safety, and the physician forgets that harvest does not follow immediately upon seed-time, and that a supreme law governs the augment and decline of all diseases that have a natural course. He is blind to the lesson which even the lower animals teach when they are sick or injured, for, whatever else they do, they seek for rest in some secluded spot, and neither eat nor drink until reviving nature calls for food. The instinct of man, also, leads him when ill to shun light and noise and movement and the cares of life, and withdraw into the calm half-lights of the sick-chamber, and there await the restorative operations of nature. There should we let him lie undisturbed as far as possible and as long as his natural powers suffice to sustain his weakness and control the excess of morbid action. He should be disturbed only when these prove insufficient, and then, in the absence of specific antidotes, remedies may be employed to palliate pain or remove hinderances to a cure. Rest is the one universal and indispensable remedy for all acute diseases; and the physician who, without imperative reasons, disturbs it by his medications is guilty of hampering his patient's recovery, and may even become guilty of his death. It is to be more than suspected that if we always felt this responsibility, it would render us more wary in our use of perturbative medicines, and teach us to place more reliance on nature and less on the art whose only aims should be, and whose only reason for existence is, to assist nature in her conflicts with pain and infirmity and death.

It was a sad time for medical art and for the sick when physicians turned from the study of individual patients to the investigation of disease as an abstract condition, forgetting that every disease is pro-

foundly modified in its type and issue by the peculiarities of the persons in whom it occurs. Of the many evils begotten by this error a very serious one is that it tends to impair the physician's sense of responsibility, and therefore to lessen that anxious vigilance which he should never suspend while the issues of life and death are in his hands. At the same time the patients of a physician who appears to have little faith in his own powers soon tend to lose their faith in him. It is through faith alone that innumerable cures are wrought, cures that have even been called miraculous. To undervaluing it and attempting to base therapeutics upon scientific principles, and administering medicines according to fixed formulæ, while neglecting the purely human elements compounded of faith and hope which exist in every human breast, are due the present unparalleled prevalence of quackery, the use of proprietary medicines, and impostures of many kinds. The dealers in specifics who fill medical periodicals and newspapers with lying announcements, the pitiable dupes who swallow, and the shameless knaves who possess legislative authority to prescribe, their ghostlets of medicine, and who trade upon the credulity of human ignorance and suffering; the foul panderers to the fears or desires of lustful men,—these and many more examples demonstrate the craving of human nature for positiveness of assurance, and its contempt for the uncertainty which Nature has affixed to all human endeavor. Faith is essential to the life of the art of medicine, and if it cannot be secured for that which is true, it will wander afield and accept the delusions and the frauds of quackery masquerading in the garb of truth. It is not easy to determine which of the two is most to be condemned, the ignorant knave whose avowed aim is lucre only, or the self-deluded physician who pins his faith to the conclusions of pathological physiology and takes them for his guide in therapeutics.

The so-called "scientific physician," he who has no guide but abstract and general principles, and who treats the disease while he forgets the patient, can never inspire such confidence or win such substantial success as the empirical physician or even the unprincipled quack.

The patient, and his friends, on their part, are very apt to forget whatever degree of skill the physician may have possessed, when it is overlaid with scientific considerations in which they feel no interest and cannot understand. I think that I run no risk of contradiction when I declare my belief that when serious sickness overtakes a scientific physician, when, for example, he suffers from a pneumonia, a pericarditis, a dysentery, or a continued fever, he is less apt to send for the professor who will explain to him learnedly, for instance, the

microbian or the zymotic nature of his disease, than for the experienced and sensible practitioner, who knows nothing of microbes or zymosis, but who is thoroughly familiar with the forms, tendencies, and methods of cure of the actual disease under which the patient is laboring, and from which his only concern is to be delivered as speedily and as safely as possible. The physician who can do this inspires faith, and not the one who brings to his aid a whole regiment of medicines that have been tried in the laboratory, but are far from being veterans in the actual, serious, clinical war with disease. By his experience he has learned to know what they can do and what they cannot do, and how to manœuvre them in the serious battle in which victory means life and health, and defeat means, perhaps, a permanent infirmity, or it may be death itself. It is a familiar historical fact that artificers and artists who have produced the most curious and beautiful works have used the fewest and simplest tools. You have, perhaps, heard of the famous painter who, on being asked what he mixed with his colors to produce such marvellous effects, replied, "Brains, sir, brains!" Very nearly akin to this phrase is one attributed to the great German soldier, Von Moltke. "To a relative who once asked of him how he would best define the science of strategy, he replied, 'Simply common sense.'" To these weighty opinions let me add one more. Gibbon, the famous author of "The Decline and Fall of the Roman Empire," wrote in his autobiography, "Whatever may be the fame of learning or genius, experience has shown me that the cheaper qualities of politeness and good sense are of more useful currency in the commerce of life."[1]

No, it is not to scientific principles, nor to a multiplicity of medicines, nor even to any familiar catalogue of their actions and uses, that the therapeutist must owe his true success, but to his knowledge in selecting them, and to his skill and tact in applying them; a talent which is personal and incommunicable. It is this sense which is characteristic of a good physician. Without it all the science of the schools is nothing worth in practice, and whatever glory and renown it may sometimes bring to its supposed possessors, it more frequently goes to cumber the lumber-room of science, and its inventors are remembered rather as the hinderers than as the promoters of medical art. The growth of knowledge is a natural, organic growth, silent, gradual, and steady, and those who promote it are oftener seen than heard. "Because," says Father Prout, "half a dozen grasshoppers in a field make it ring with their importunate chink, while thousands of great cattle reposing under the shadow of the oaks, chew the cud

[1] Autobiography, p. 106.

and are silent, do not imagine those who make the noise are the only inhabitants of the field."[1]

But medicine has a higher aim than even the cure of diseases,—it is their prevention. However valuable the researches that have revealed the existence, nature, action, and effects of morbid causes, their value would be comparatively small, indeed, if they did not also show us the manner of combating and even of destroying these causes. It would be of small concern to us and to mankind to know that malaria is the cause of periodical fevers, if we did not also learn how to prevent the generation and diffusion of that morbid poison; a knowledge of the relations of vaccine to variola would be valueless if we could not employ the one to limit the ravages of the other. We justly esteem as precious the resources of therapeutics, but how much greater would the value of the medical profession become if it were able to prevent the diseases that it now attempts, and so often in vain, to cure. It is infinitely to the discredit of medical science and art that they have existed for thousands of years without until very recently having achieved substantial success in the prevention of diseases. It is only within a few years that hygiene has found a place in the curriculum of our schools, and that so subordinate a one that few medical students recognize its supreme importance. They seldom apprehend that if the laws of health were thoroughly understood and observed, a large proportion of the diseases which desolate mankind might be mitigated and in time prevented altogether. Who that reads of the privation, squalor, and physical and moral filth in which the majority of mankind live even in civilized countries, and who compares the stunted bodies and minds, the ignorance of moral motives, and the excessive mortality that decimates these victims of bad government and brutal natures, and then compares them with the nations and classes that have led more wholesome and longer and happier lives, can doubt that hygiene in its fullest application is more important even than medicine to the mass of mankind.

Nor, if we turn from the lower regions where human nature is befouled and brutalized, and furnishes the soil in which grow plagues that sweep away thousands as with a besom of destruction, to higher levels where not only the necessaries, but many of the comforts of life are enjoyed, we find there with melancholy frequency the evil inheritance of sensual indulgence and neglect of the laws of health, denoted by consumption, and diseases of the brain, stomach, heart, and kidneys. When we consider these fatal consequences of the infringement of hygienic laws, and that all of them are more or less preventable or susceptible of mitigation, we feel surprised that so

[1] Reliques, p. 372.

little was efficiently done until quite recently to discover and check these wide-spread causes of mortality; and that the very name of sanitarian did not exist fifty years ago. To all who are just entering upon a medical career let me emphatically say that it is more meritorious to prevent disease than to cure it, and that a very large proportion of the medicines described in our books might be discarded if only we should thoroughly learn and wisely administer the laws of sanitary science.

Among the many hinderances to professional eminence in this country the most serious ones are (1) that our highest standard of attainment is a comparatively low one, and (2) that our success rarely secures either substantial rewards or fame. Our achievements in science, literature, and art seldom reach the highest level; our science is too often superficial, our literature lacks substance, and our art is commonplace. If sometimes these epithets become inappropriate it is usually when the workers have been taught by European masters in European schools, so that it remains true that the great majority of our laborers in intellectual fields reach only a respectable mediocrity. But why does the standard of our attainment seem so much lower than that of European countries? One reason has been made so familiar by repetition that it no longer impresses the public who are profoundly persuaded that every American, by virtue of his mere Americanism, is competent to fill every station and perform every work, without regard to his birth, talent, education, or experience. In older countries, where civilization has been slowly crystallizing for centuries into its present form, the very opposite opinion is deeply rooted, not only because it is illustrated by the personal history of men eminent in whatever ennobles civilization, but because it is also a matter of implicit faith even with the peasants who have never left their villages. They believe that to reach the top of a ladder it must be mounted round by round. Nature achieves nothing *per saltum;* her mighty works are accomplished by imperceptible degrees. Ignorance or defiance of this law is responsible for the failure of so many who would climb the steps where "Fame's proud temple shines afar." We disregard the stern lessons of history, and despise the *improbus labor*, the intense and constant toil, which, whatever our natural endowments may be, can never be dispensed with.

But even when such labor is diligently and honestly employed, what is the crown of honor, what are the substantial prizes that reward a man for years of toil and brilliant achievement? Does he occupy an academic seat from which and beneath his laurel wreath he can survey the throngs that pass along the arduous path he trod

and in which he purchased honor and renown and independence at the glorious price of his own genius and labor? Alas, no! It has often been said that no political condition produces so many envious rivals as a democracy. It did so in Greece, in Rome, in France, and I fear its baleful influence is not unfelt in America. However this may be, it is certain that, as a rule, offices in the public service that should be filled by eminent physicians are bestowed on men who have never been heard of beyond their villages or the foul purlieus of a city ward, and that the most serious concerns of educational and sanitary medicine are too often intrusted to men without professional or social standing, and who have furnished no proof of their competency or their integrity. Can such things be and leave us room to hope for the elevation of medical science, the improvement of medical art, the purification of the medical profession that we all desire, and the separation of its worthy from its unworthy members, in such manner and by such signs as shall leave no doubt of their natural affinities? Not to-day, not this year, but little by little, in the course of time, such a winnowing and sifting of the profession may be accomplished through the efforts of the wise and prudent, and of those who feel that the glory of a man is not so much in his achievements as in his character.

But to return to what I ventured to suggest was the qualifying and indispensable adjunct of science.

All is not science which bears that name, nor do all methods which are called scientific deserve that title. "The scientific student," it has been said, "in proportion as he is scientific will devote himself to the investigation of facts. He will not expect the work to be completed in his own lifetime. He will recognize his position as a workman, not the architect, of the great temple of science, and will be thankful if he can add one abiding stone to the vast building. To him all boasting of his own work, all unworthy attacks upon the work of others, all self-seeking or self-assertion will be impossible."[1] Nor is the new always the true. One who can look backward fifty or sixty years cannot but be startled by the changes that have befallen the science and the art of medicine. He sees, as it were, a new heaven and a new earth, brighter and apparently more stable than those he was acquainted with in his youth; but if he has studied or witnessed the scene shiftings of medical history he will more than doubt whether change has always insured progress on the road to truth, or whether the moral tone of the profession has risen in the same degree as its increased knowledge and its therapeutical resources. He may, indeed, find some reason to be shocked at the palliations of base and

[1] London Quarterly Review, April, 1894, p. 412.

treacherous acts that are put forth sometimes in the name of liberalism, and at temptations offered him to make compromises with honesty and truth for the sake of his selfish interest, and under the name of impartiality and liberality. There is too much reason to fear that the lament of Burke over the decay of political life in England may find a parallel in the medical profession of our country. His words were these: "That sensibility of principle, that chastity of honor, which felt a stain like a wound, is gone."

I can certainly entertain no wish to discredit an art which has procured for me the chief professional pleasures of my life as well as a large share of whatever credit I may have obtained; but the nearer I approach to the end of my career the more solicitous am I to bear witness against the false doctrines, opinions, and methods, which, especially for young minds, have the fascination of novelty. It is natural that in their freshness and vigor they should be attracted first and then deluded by whatever seems to have about it the bloom of youth, its vaulting ambition, and its facile methods, and that they should turn a cold or careless ear to truths which are too old to be attractive and too well settled to be stimulating. They will find, as all experience teaches, that what now fails to persuade and interest them will sooner or later become the corner-stone of their professional faith and practice; or, if they do not, they will assuredly go to swell the ranks of those who are incapable of assimilating the old or of hungering for that which is true as well as new.

It is to be feared that too many physicians are less conscious than they should be of the value and dignity of the inheritance that has come down to them through the ages. It is at least as ancient as religion, of which it was originally a part, and the variations of its doctrines are neither as many nor as great as those which have affected the church that claims for its doctrine that it is believed *omnibus, semper, ubique.* It is as much more stable than law, as nature is more uniform than man in its operations. With a lineage so ancient and noble, a function so divine, an influence so beneficent, medicine demands from every ingenuous and generous mind a veneration without limit, and a loyalty above all temptation.

ANIMAL EXTRACTS.[1]

By Horatio C. Wood, M.D., LL.D.,

Philadelphia,

Professor of Therapeutics in the University of Pennsylvania.

Gentlemen: I propose to-day to call your attention to what we may consider an outline study of the modern use of various animal substances in the treatment of disease. From time immemorial, as you well know, animal tissues have been used in the treatment of various diseases, and this custom has remained until the present day in the so-called isopathic branch of homeopathists and in the treatment of the Chinese and other barbarians. You will find in an isopathic catalogue, published by a New York firm, dried extracts from gonorrheal pus, from syphilitic ulcers, from every form of discharge which the human frame or human tissues are capable of giving origin to, as well as from the tears of heart-broken maidens, this last remedy being supposed to be a specific for the cure of griefs and woes, especially of love-lorn swains. There is neither reason nor science, nor yet good clinical observation, in support of the value of any of these things. They act, if they act at all, by making a psychical impression. There has, however, arisen within the last few years a method of using certain animal substances in the treatment of disease which rests upon a sound scientific basis and is already making a record of increasing triumphs, and it is this to which I want to-day to call your attention.

As anatomists and physiologists, you know full well that there are apparently connected with the circulation in the human body certain organs which are sometimes spoken of as ductless glands, whose anatomy is obscure and whose function has hitherto been unknown. As the results, however, of recent investigations we now know that these glands are in some mysterious manner connected with the function of nutrition throughout the whole body, and that their removal or a perversion of their function is followed by severe universal symptoms.

The only explanation that we can give is that these organs form some substances which have relations with all the tissues and which modify everywhere protoplasmic movements. If this be true, the secretions or substances produced in these glands belong among alterative remedies. The symptoms of myxedema, as first described by Ord, are increasing weakness associated with swelling

[1] Lecture delivered at the University of Pennsylvania, February 20, 1896.

of the body, enlargement and thickening of the skin, exudation into the subcellular tissue, and a very extraordinary slowness of all functions. The appetite is feeble, the movements are slow, the temperature is subnormal, the patient thinks with great slowness, and as the days go on this universal slowing of function becomes more and more marked until the patient sinks into a condition of complete apathy with very much lowered temperature, and a failure of all vital activities.

Kocher, living in a country where the thyroid enlargement known as goitre is very common, extirpated this tumor in a large number of cases. By and by he found that these cases took upon themselves all the symptoms of myxedema, and at last he had in the Berne Hospital a large number of typical cases of myxedema which were the result of extirpation of the thyroid gland. That it was the removal of the thyroid gland which produced this disturbance of nutrition was soon shown by the fact that if he removed only half or one-third of the gland myxedema failed to develop.

Horsley, of London, made a series of experiments upon monkeys. He removed the thyroid gland and found that the result was a production of symptoms like those of myxedema,—apathy, lowering of temperature, exudation of mucin into the subcellular tissues, tetanoid symptoms, and, finally, death from progressive loss of all functional power. These experiments suggested to Murray the use of the thyroid gland in the treatment of these disorders. The results were most astonishing. Little by little progressive deterioration was arrested by the use of the thyroid extract, and the patient finally restored to health.

It is evident, therefore, that myxedema is the result of the absence from the blood of some principle or principles which are supplied by the thyroid gland, and it is further evident that after the myxedema has been removed by the use of the thyroid gland the patient must relapse if left to himself. The treatment of myxedema, therefore, consists of two stages, the first, that in which large amounts of the gland are given in order to remove the results which have been produced by the lack of the thyroid principle; the second, in which for months and years small doses of the gland are taken in order to prevent the recurrence of the myxedemic symptoms. We have no knowledge of the nature of the thyroid principles; we know that it is not necessary to use the raw gland; that its activity is impaired, but not destroyed by slight cooking, and that the gland yields its activity to glycerin, and that the activity is not destroyed by careful desiccation. A further important fact is, that though the remedy acts more quickly and effectively when given hypodermically, it may be given by the

mouth successfully. So far we have a firm scientific foundation for the use of the thyroid extract; we now come, however, to the consideration of its empirical employment.

Thyroid extract has been tried in very many diseases.

In hypertrophy of cicatricial tissue resembling keloid, possibly true keloid, thyroid extract has caused absorption of the hypertrophied and cicatricial tissue. It has been used with success in simple goitre, in the goitre of Switzerland, before calcareous degeneration has taken place. It will bring about destruction and absorption of the overgrown tissue. In excessive obesity, with tendency to weakness and anemia, in which exercise and diet fail, thyroid extract should be tried. Thyroid extract is sometimes useful in melancholia, but how it acts we do not know.

When thyroid extract is used freely in continuing doses it sometimes produces a series of phenomena constituting the so-called thyroidism. The most important of the symptoms are loss of weight, shortness of breath, and a weak and rapid pulse. In all cases in which the extract is being used freely and continuously, but especially in those cases in which the symptoms are not those of myxedema, the patient should be weighed at least every two weeks, and any undue loss of weight or disturbance of circulation or respiration should be the immediate signal for the withdrawal of the remedy or a great reduction of the dose.

The thyroid extract has been largely used in exophthalmic goitre, but here I am sure it does harm. The cause of the symptoms in exophthalmic goitre probably is the excessive development of the thyroid secretion. In a case of pronounced and persistent exophthalmic goitre, under my care, there was an injury to the spleen followed by abscess which was opened, and after mouths of severe illness recovery occurred. In the second or third week of the splenitis the goitre began distinctly to diminish. By the fifth week the goitre had disappeared, and since the woman has recovered from her illness the goitre has not returned.

We know excision of the thyroid gland produces enlargement of the spleen, so that there is some relation between the two glands. I have used splenic extract in three cases of exophthalmic goitre, one went home apparently cured, and the two others were much benefited.

The functions of the ductless glands known as the suprarenal capsules still remain a mystery. This only is certain, that disease of these capsules is followed by a progressive asthenia, a peculiar bronzing of the skin, and loss of digestive power with excessive vomiting. Two years ago I was called in consultation to such a case, in which the patient had lost seventy-five pounds in weight, was entirely un-

able to retain food, and was so weak that she could not sit up in bed without fainting. Under the administration of the glycerin extract of the suprarenal capsule the patient began at once to improve, and a few months later came from her country home to my office apparently well; the skin, however, still remaining bronzed.

I know of two or three other cases of Addison's disease in which benefit was derived, and there have been some cases of failure reported. There is, however, a special reason for failure. Suprarenal capsules are ordered from some apothecary, who has a faint notion that the suprarenal capsules consist of fat, and he gets a lump of fat out of the belly of an animal, and the doctor wonders why he don't cure his case of Addison's disease. Always see that a first-class veterinary surgeon gets the capsules himself from the beef. In the cases cited I employed the glycerin extract in doses of ten to fifteen minims hypodermically.

Extracts of the bone marrow and of the spleen have been employed in the treatment of leucocythemia, but so far there has been no great success, and the reason of the failure is obvious when we remember that in leucocythemia the bone-marrow is hypertrophied, not atrophied. It is not probable that glycerin extracts of marrow will prove valuable since there is already too much marrow activity.

In pernicious and other anemias extract of bone-marrow has been employed by Frazer, Hamilton, J. S. Billings, Jr., and others, with varying results. All that can be said at present is that there is sufficient evidence to warrant the administration of the medullary glyceride in cases of severe anemia.

There have been used and much advertised in medicine all kinds of animal extracts, "cerebrine" from the brain, "cardine" from the heart, and so on. The only possible theory which could point towards these substances being of value in medicine is that every organ takes something out of the blood for itself and thereby leaves the blood more pure and free from substances which are deleterious to other organs. There is no probability of truth in this theory, no reason why extract of brain should have any influence on the brain or extract of heart upon the heart; neither of these organs has any known connection with nutrition.

It is somewhat different with Brown-Séquard's famous elixir of testicles. As we know the genital glands hold some relation to the general nutrition. Their removal early in life modifies the whole physical and moral character of the animal, and, therefore, *a priori*, you can see it is possible that there might be obtained from these glands a substance which would have some effect upon nutrition, but

it is only during the developmental period that these glands are active in their relation to nutrition, and clinical results have not confirmed the assertions of Brown-Séquard, so that his famous elixir is to-day rarely if ever used.

A second class of animal substances capable of use in medicine are those which are the products of bacterial growth in the animal organism. It is now known that many and probably all pathogenic germs produce in the animal organism two substances capable of violently affecting nutrition, which substances are believed by chemists to be of albuminous nature.

To one class has been given the name toxin; to the other, the name antitoxin. The toxin is the substance produced by bacteria beneficial to the bacteria itself, whilst the antitoxin, although produced by the bacteria, is hostile to it. In infectious diseases there is a battle between the toxins and the human animal aided by the antitoxins. The toxin has a twofold action. It acts locally as a poison, and also affects the general system. Thus, the bacillus of diphtheria, growing upon the throat, forms there a toxin which attacks the immediately surrounding tissue, and so weakens it that the bacterium is capable of overcoming the natural resistance of the part. By-and-by, as the toxin is absorbed into the blood, it affects the general system and produces the constitutional symptoms and the widespread lesions of diphtheria. That the *rôle* of the toxin is important is shown by the fact that various pathogenic bacteria introduced into the living animal without any accompanying toxin are unable to overcome the resistance of the tissues and fail to develop. The antitoxin is in some way destructive to the bacterium; how it acts is still a matter of theory; it is proven that it is not a germicide and is not capable of killing the pathogenic organism. By some it is thought chemically to act upon the toxin, but the present evidence renders this improbable. The most plausible explanation is that the antitoxin in some way so affects the protoplasm that the latter is able to resist the action of the toxin. If to an animal suffering from infectious disease due to the local lodgement of a pathogenic germ antitoxin be given, the first evidence of its beneficial action is the failure of the bacteria to grow, though they are not killed.

Some years ago the world was almost convulsed by the alleged discovery by Koch of a method of curing consumption. The science of the subject had not then been worked out far enough for any one to comprehend clearly the method in which this so-called tuberculin cured tuberculosis, but to thoughtful minds it was apparent from the beginning that tuberculin could not cure tuberculosis if it acted as Koch said it did.

The allegation of Professor Koch was that tuberculin acting in conjunction with the bacillus so increased its local action that a tissue surrounding the tubercle rapidly softened and was cast off with the tubercles. With our present knowledge the whole subject is clear. The tuberculin of Koch was simply an impure toxin. When the tubercle bacillus grows in the human lung, the toxin which it forms slowly kills the tissues and produces ulceration; at the same time, finding its way into the blood, it causes the so-called hectic fever and the various constitutional symptoms with which you are familiar as occurring in chronic tuberculosis. When Koch's tuberculin—that is, tubercular toxin—is injected into the blood in a certain small quantity, it produces no febrile reaction in the normal individual because there is not enough of it. If, however, the injected toxin be aided by a toxin which has been produced in the system, and which is already in the blood, the aggregate amount will be capable of producing a hectic fever. At the same time the injected toxin will reinforce the local action of the bacillary toxin, and so bring about rapid ulceration of the lung and discharge of the tubercle. You can see why injection of such a toxin, though it should lead to the discharge of every tubercle bacillus, would not cure the patient. The tuberculin does not affect the primary weakness of the consumptive individual,—that is, the lack of power to resist the tubercle bacillus,—and does not even prevent reinfection by the loosened tubercle. Indeed, the very loosening of the tubercle bacillus favored its entrance into the lymphatics and the blood-vessels, and its consequent dissemination throughout the body, so it was not long before Virchow found out that a general tuberculosis often followed immediately upon the treatment of a local tuberculosis by injection of tuberculin.

I may say the outlook for the cure of tubercular disease by agents of the class which we are considering does not, to my thought, seem at all bright. In favorable cases after a certain time diphtheria ends of itself, typhoid fever gets well of itself, and erysipelas goes on to recovery of itself; then recoveries take place because a sufficient quantity of the antitoxin has been produced to put an end to the conquest by the bacteria. You do not see this in tuberculosis. There is never a sufficient production of antitoxin in a case of tuberculosis to arrest the growth of the tubercle bacillus; therefore it does not seem probable that we will ever get a tubercle antitoxin that will be successful.

Antitoxins have been used to a greater or less extent in tetanus, in diphtheria, in erysipelas, and in other infections.

Tetanus is produced by a bacillus; this bacillus inoculated into the wound takes usually from three to eight days to develop itself

fully. In some cases it takes two or three weeks, and then you get an outbreak of symptoms which are not due to the invasion of the blood by the bacillus, but to the presence in the blood of the toxins which have been produced.

Although the incubation period of tetanus is often so long, yet in many instances death has occurred within twenty-four hours after infection. Jaccoud, indeed, reports a case of a negro, where death is said to have taken place fifteen minutes after the reception of the wound. It is plain that in such a case the man was inoculated, not simply with the tetanus bacillus, but with a tetanus toxin which had been produced outside of the human body. Cattani pricked himself with a needle which had been dipped into a solution of toxin in which there were no bacilli, and had an attack of tetanus from which he barely escaped with his life. The tetanus toxin, therefore, can be produced outside of the human body as well as in it; of all known substances it is the most active as a poison; the dose of it is about one-two-hundredth of that of strychnine. Thus, if a quarter of a grain of strychnine given hypodermically would kill a man, the one-eight-hundredth of a grain of this toxin would prove fatal.

In the laboratory, tetanus can be cured with absolute certainty. You can tetanize the rabbit and cure him according to a mathematical formula by means of antitoxin. But in the laboratory it is always known exactly how much toxin is given to the animal, and the dose of antitoxin is proportioned to the dose of toxin, and more than this, the antitoxin is given just before or immediately with the toxin; whereas in human tetanus the man has the toxin through his whole system before the tetanus is recognized, and you can see why, therefore, the treatment of tetanus by antitoxin has been so exceedingly unsatisfactory.

Cattani, in his summary of the matter, does not believe that the antitoxin is of any use in cases in which the symptoms are severe enough for death to occur within the second or third day,—that is, in the acute forms of tetanus. In subacute and chronic tetanus in which symptoms come on during eight or ten days, antitoxin has seemed to save life. It must not be forgotten that the chief value of the antitoxin is not in overcoming the constitutional action of the toxin, but in preventing the formation of the toxin by inhibiting the growth of the bacillus.

One difficulty in the antitoxin treatment of tetanus is the absence of uniformity in the various serums and of any normal unit. Merck & Co. furnish a solid antitoxin made in Bologna by Tizzoni & Cattani; this is to be dissolved in warm water which has been recently boiled, and given with all antiseptic precautions, no chemicals, however,

being employed. Care is necessary also that none of the appliances be hot at the time of use, as the antitoxin is rapidly decomposed by heat. If the case be taken early and be not extremely severe, half the contents of a bottle is to be injected as the first dose; the other half is then divided into four doses, which are to be given in the course of the following day or days; these doses are to succeed one another more or less quickly, according to the action produced on the tetanic symptoms by the previous doses. If, on the other hand, the case be a grave one, or the treatment be commenced late, the whole of the contents of one bottle is to be injected at once; the second bottle to be used for the following injections, quarter of the contents at a time, every six to twenty-four hours, according to the severity of the symptoms. Larger doses of the antitoxin are stated by Tizzoni and Cattani to be perfectly safe.

Pasteur's antitoxin, prepared, I understand, in Paris, is also furnished by Merck in solid form, three grammes in a twenty-five gramme bottle. The bottle is to be filled with warm—not hot—sterilized water, and sixteen to thirty-two minims (one to two cubic centimetres) are to be injected every six to twelve hours according to the severity of the symptoms. One to two bottles may be given during the first day, and it is stated that four or five bottles may be necessary for a cure. My experience with the antitoxin treatment of tetanus is confined to one case, which I saw in consultation with Dr. Radcliffe Cheston. Although this was an example of very mild, slowly-developed tetanus, the patient died upon the seventh day of the disease, notwithstanding the use of Pasteur's antitoxin, obtained from the institute in New York. On the fifth day of the disease, under the use of bromide and chloral, the patient seemed better, with normal temperature, pulse 84, and good morale. She was able to move the jaws a little, but had some slight spasm of the muscles of the back. The antitoxin was then injected; two hours later the temperature rose two degrees with increased frequency and weakness of the pulse. The injections were repeated five times in twenty-four hours, and, in the belief of Dr. Cheston, in each case there was produced by it distinct heart-depression and elevation of temperature. The subject died of exhaustion and pyrexia (106° F.), without severe spasms. There was no evidence in this case of the antitoxin doing any good; indeed, Dr. Cheston, who watched the case, thought it largely contributed to the fatal result.

It will be noted that this case was one which had a fair chance of recovery under the older treatment, whilst the death from exhaustion with rapid rise of temperature after the antitoxin is precisely parallel with the result reported by Schwartz, who believed also that in his

case the exhaustion and the rising temperature were referable to the antitoxin.

There are largely sold at present, various antitoxins of diphtheria. I cannot take time to-day to give you the statistics of the antitoxin treatment of diphtheria, and I will agree with some in believing that the exact value of this treatment has not been thoroughly established. On the other hand, I am absolutely of the opinion that the value of the treatment has been sufficiently shown to require every conscientious physician to use antitoxin in diphtheria just as much as he would use quinine in malaria. I can only speak of one of the more recent publications—that is, in regard to the general mortality of diphtheria in the city of Paris. For three years in the first quarter of the year there were each year 1743 cases of diphtheria, with a mortality-rate of 53 per cent. In August of 1894 the antitoxin treatment began to prevail in Paris, and was fully in use by January 1, 1895. The result was that in the first quarter of 1895, instead of over 1700 cases of diphtheria, there were only 520 cases. Every case of diphtheria to which antitoxin is administered in the first twenty-four hours prevents or lessens the chances of infection. That is the reason that 500 instead of 1700 cases were reported. In other words, a mortality of 53 per cent. has been reduced to a little under 15 per cent.

A fact we are especially interested in, however, is that large numbers of physicians still believe that antitoxin does no good in diphtheria. The reason of this, I think, is not far to seek. In the first place, antitoxin cures, as I have told you, by arresting the growth of the bacillus. If you give the antitoxin the third day you may stop the growth of the bacillus, but every tissue of the patient's body is already poisoned unto death with toxin, and most tissues have already undergone irreparable degeneration. The child goes on to death, although you have arrested the diphtheria, because of the ravages which the disease has already produced. It does not die directly or immediately of the diphtheria, but it dies from the effect of the diphtheria. The second reason is that in bad cases of diphtheria there is more than a diphtherial infection. Right on the heels of a diphtheria, cobrethren in destruction with the Löffler bacilli, come various streptococci, and the minute the throat begins to be ulcerated you have added to the diphtherial infection streptococcic infection, and though you do kill the bacillus in time, the case goes on to death by streptococcus infection. It is the secondary infection which kills under these circumstances.

Of course, a Löffler bacillus antitoxin is useless against a streptococcus toxin; theoretically, at least, two antitoxins should be used and not one in most cases of advanced diphtheria.

The absolute importance of the use of the antitoxin during the

first day of a diphtheria is very evident. There are very few, if any, well-observed cases of diphtheria on record in which it has been positively determined that the antitoxin administered during the first few hours after the outbreak of the disease has failed to bring about a cure. On the other hand, our statistics seem to show that if the injection be postponed to the fifth day the mortality rate with the use of antitoxin would be no less than without it. Our modern municipal scientific methods, notwithstanding all their laudations, are very liable to become causes of death. A case of suspected diphtheria presents itself to the practitioner; already the child has been sick, it may be, one or two days. A culture-tube is prepared, sent to the Municipal Laboratory, examined, and the result sent back to the practitioner, who then goes to see the patient. It is very lucky if not more than one day is lost in this way, and the loss of those hours may well mean the loss of the life, for the time has elapsed during which the antitoxin would act. There is no reason at present for believing that the antitoxin used in moderate quantity does any harm when the child has not diphtheria. When, therefore, any case presents the clinical aspect of diphtheria, the antitoxin should be used at once. For educational purposes, and for rendering definite our knowledge, the municipal laboratories are very useful; for therapeutic purposes the less attention paid to them, probably, the better for the patient.

The use of antitoxin in any case of diphtheria should not interfere with the local treatment of the throat and the employment of other judicious measures for the relief of the patient.

As it is never possible in any case of human diphtheria to know how much of the toxin is in the system, exact antitoxin dosage is impossible, but some general working rule must be formed; especially as there are a large number of serums upon the market of varying strength. Universal consent now seems to have been given to the recognition of Behring's antitoxin unit, which is an antitoxin serum of such strength that one cubic centimetre of it is capable of overcoming ten times the minimum fatal dose of the toxin for the guinea-pig. One hundred and forty Behring's units may be injected at one time into the buttocks or into the back in an ordinary case of diphtheria. If no effect occurs, 100 units may be given the second day. If the nature of the case be doubtful, especially if the injection is being practised very early, it is better to give only 70 to 100 units at the first dose, repeating the injection in the same amount on the second day, and even the third day if the symptoms require it.

I cannot find that there is any case on record in which a fatal result in diphtheria was fairly attributed to the antitoxin; sometimes, however, it produces disagreeable symptoms. Among the most

characteristic of these is a rash of variable character; sometimes it is scarlatinoid, sometimes rubeoloid, sometimes it is a widespread erythema. It may be accompanied by swelling of the joints and by fever, but it seems always to subside without serious results.

A. Marmorek has reported the use of streptococcus antitoxin, prepared in the Pasteur institute of Paris, in erysipelas, affirming that the results were on the whole good, though they appear not to have been very uniform. In mild cases of the disease he gave a single injection of ten cubic centimetres of the serum; in bad cases he employed twenty cubic centimetres, and followed it in twenty-four hours by ten cubic centimetres more. In one bad case 120 cubic centimetres of the serum were injected within ten days.

The possibility of an antitoxin treatment of septic poisonings opens a very attractive field of investigation. There can be no doubt but that in diphtheria, in scarlet fever, and in many other diseases, death or permanent injury results from a secondary septicemia as much as, or sometimes more than, from the original infection; and Marmorek alleges that in scarlet fever, and even in the treatment of the septic arthritis, which is commonly known as scarlatinoid rheumatism, the streptococcus antitoxin has yielded excellent results. Gromakowsky, having obtained good effects in animals from the use of a streptococcus antitoxin, has in a few cases of streptococcus-poisoning in man gained advantage by the use of a serum made from rabbits. Pozzi, Dieulafoy, J. E. Kelly, Sevestre, Cuffer, and Bar have all used, though seemingly to a very limited extent, the streptococcus antitoxin, and on the whole the reports are favorable. In diphtheria it is now alleged by some that by the use of a double antitoxin serum,—*i.e.*, of Löffler's bacillus and of the streptococcus,—both the primary and secondary infection can at once be met. In the University Hospital one desperate case of streptococcus infection has been treated by serum prepared in the Pasteur Institute of New York; recovery occurred, but Professor White says he is in grave doubt how far the serum contributed to it. Certainly the whole subject is in the earliest experimental stage.

In any case of septic infection it is, of course, essential to employ the proper antitoxin, rarely, however, is it necessary to wait for a cultivation; the clinical features in most cases being sufficient to distinguish the cases. An infection which is localized, produces freely of pus, has but little tendency to run, is usually due to a staphylococcus; one which produces serous or ichorous rather than purulent exudation, and rapidly courses along the lymphatics, or gives rise to erysipelatoid symptoms, is the result of the labors of a streptococcus.

TWO CASES OF DOUBLE PNEUMONIA.[1]

By J. M. Da Costa, M.D., LL.D.,

Philadelphia.

I shall now show you two cases of what we shall call double pneumonia, with a certain reservation with regard to one of the patients, which I will hereafter explain.

J. R., 23 years of age, occupies bed 28 in the men's ward, and was admitted on December 31. According to the statement of his friends who brought him here, he had been ill prior to admission for ten days with pain in his chest, oppression in breathing, and cough. Of his history further than this we can tell you nothing. He is too ill from disease to give us any information, and as he is an Italian and cannot speak English at all, we cannot communicate with him freely, were he even less dull than he is. He was admitted with a temperature of 98.4° F., and was breathing 72 times in the minute; his pulse was 140,—certainly not a promising state of things. Moreover, we found upon examination at the base of the right lung complete dulness on percussion, fine crepitant râles, and blowing, tubular respiration. On the left side we found impairment of resonance to a marked degree over the whole of the left lung, though most marked at the base, with blowing, yet not tubular, respiration and some fine râles. There were no heart-murmurs, but it was difficult to make an accurate observation and analysis of the cardiac sounds on account of the extraordinary rapidity and harshness of the respiratory sounds.

Now, gentlemen, this man was extremely stupid from disease, without appetite, and very weak, as I have told you. There was reason to believe that he had had some epistaxis prior to admission, but he has had none since. After he came in, far from getting better, he got worse. The respirations went up to 80 and 90, and even higher. His pulse went down to 96 under free stimulation. Since the day before yesterday he has greatly improved. I will report upon his present condition before giving you a summary of the case, especially with reference to the treatment.

First notice by this chart that his respirations are this morning only 24, the pulse 60, and the temperature 99° F.; and observe that the temperature has never been above 100° F. since admission. It has not been a febrile temperature. Let us now examine his chest and ascertain the physical phenomena. There is still some dulness over the whole left lung; less so under the clavicle, but from the second interspace down to the border of the ribs there is marked dulness.

[1] A clinical lecture delivered at the Pennsylvania Hospital, Philadelphia.

On the right side, anteriorly, the percussion-note is clear until I get down almost to the line of the liver. Upon auscultation we find some coarse moist râles, with prolonged harsh breathing, especially on expiration, over the whole of the left side, but no typical bronchial breathing. In addition, as I approach the neighborhood of the nipple and below, I catch an occasional friction sound. That is left side anteriorly. On the right side the respiratory murmur is distinct, exaggerated, and slightly harsh in character. The percussion-note, as I have told you, is clear until we get quite low down. At the back of the right lung, as I proceed from the angle of the scapula down, there is still dulness. There are coarse râles, some dry, some moist, and a few finer moist râles in this region, but there is no distinct bronchial breathing. At the angle of the left scapula and from there down we have a friction present, and some harsh vesicular, not purely bronchial, breathing, and some not very fine râles. As to the heart-sounds, the first is distinct, the second sound rather feeble; there are no murmurs.

What addition shall we make to the notes this morning as the result of this examination? It is that the pneumonia on the right side is in course of resolution. There are some coarse râles and harsh respiration. On the left side there is still congestion of the lung, as shown by the dulness, with exaggerated breathing and everywhere fine râles, but there is only partial consolidation; no bronchial breathing anywhere.

This is a case of so-called double pneumonia. When you hear persons speak of double pneumonia, they mean this, as a rule, that one lung has undergone the typical pneumonic consolidation and the other lung is in a state of heavy congestion. You may tell this by the character of the resonance; the percussion dulness is not so complete as it is over the consolidated lung; and also by the respiration. In the congested lung there is no tubular breathing; there may be harsh respiration, but not bronchial breathing, such as occurs over the pneumonic area. This is what is meant by people usually when they speak of a case of double pneumonia. True double pneumonia with complete consolidation occurring simultaneously in both lungs is an extremely rare condition.

In the chart the three lines of different colors indicate the frequency of the respiration and pulse and the degree of temperature. You notice that the breathing was extremely rapid, over 90 in the minute for a time, and the pulse also was rapid, but as the man grew better the respirations went down, but the pulse decreased to a less degree proportionately. This case illustrates what we often find in pneumonia, a disproportion in the pulse-respiration ratio; the respira-

tions are greatly increased, but the pulse is not increased in the same degree; thus their ratio is much altered. Here we observe that on one occasion both the pulse and the respiration were 90 to the minute. In ordinary fevers this does not take place; the normal ratio between the respiration and the pulse is maintained. Indeed, to complete the observation, we notice that on another occasion the respiration was found by an attendant to be 100 in the minute, while the pulse remained the same. This, certainly, is an extraordinary state of affairs.

Now, as to the treatment. When this patient was admitted, oxygen was administered as freely as we could get him to take it, so that about forty gallons were given daily. He had tincture of digitalis, fifteen minims every second hour; whiskey, an ounce every two hours; and carbonate of ammonia, seven grains every two hours. We kept up this treatment until yesterday, when we noticed that he was distinctly better; the doses were reduced, the whiskey to six drachms from an ounce, and digitalis from fifteen minims every two hours to ten minims every three hours, after the pulse had dropped to 60. The inhalation of oxygen has been resorted to only occasionally in the last twenty-four hours. He was freely dry-cupped on admission, and this has been repeated several times since.

This has been the line of treatment, which has been pursued with results that enable me to say that, notwithstanding the extraordinary gravity of the case, I feel warranted in thinking that he will recover. Another reason for taking this favorable view is that he has herpes upon his lips. When you see in a case of pneumonia an eruption of herpes upon the lips or cheeks, you may conclude that the patient will recover. There is some connection between the eruption of herpes around the mouth and the conclusion of the pneumonic process. Let me also call your attention to the fact, in dismissing the case, that this man got well without a crisis: the temperature was not febrile, and the symptoms yielded progressively as he gradually got better.

The second case is A. E., a colored teamster, 24 years of age, occupying bed No. 25 in the men's medical ward. He was admitted on the same day as the former case, December 31, and has been under treatment for the same period of time. He was admitted with this history: He had been ill for seven days with cough and slight expectoration, which was not bloody. He had had no chill and only moderate fever; some headache was present and pain in his chest on coughing. There was no nausea and no vomiting.

The physical signs on admission were as follows: Diminution of resonance or absolute dulness over the left lung, and at the base accompanied by moist crepitation. Increase of vocal resonance and tactile

fremitus was observed both front and back over the whole of the left side. There was distinct blowing respiration or bronchial breathing, with râles, at the lower part of left lung posteriorly. On the right side anteriorly there were dulness and crepitation over the upper part of the lung with bronchial breathing; posteriorly there was dulness with marked increase of vocal and tactile fremitus, but without bronchial breathing, nearly over the whole of the back on this side. There was therefore, as well as pneumonia, a very extensive pneumonia of the left lung and of the upper part of the right lung.

Now, gentlemen, the physical signs this morning are these: There is no dulness, but still harshness of respiratory murmur on the left side anteriorly. On the right side the dulness has now entirely gone, and the murmur is vesiculo-bronchial, mixed with a few fine moist râles. There is some harshness of murmur, but no bronchial breathing anywhere, and the dulness has disappeared almost entirely from both lungs, except that there is still some impairment of resonance at the lower part of the right lung posteriorly. Therefore the physical signs show a most marked improvement. It is noted that he had no rusty sputum, nor had the preceding case, by the way.

This is another case of double pneumonia, with a great deal of congestion and some inflammation on the right side, and marked pneumonia of the left lung. This patient also has herpes upon his lips this morning, which we have already recognized as a favorable sign.

Upon reviewing the graphic characters of the chart, you observe that his respirations were 37 to the minute when he came into the ward. His temperature was not high; it has never reached 101° F., the highest recorded being $100\frac{4}{5}$° F., and, as in the preceding case, there has been no true crisis, the fever gradually lessening as the symptoms slowly yielded. The pulse on admission was 108; it is now 88.

The treatment consisted in the administration of ten minims of digitalis every three hours, half an ounce of whiskey every three hours, and seven grains of carbonate of ammonia every three hours. He has also inhaled oxygen. Yesterday the digitalis was reduced to ten minims every four hours, his stimulant remaining half an ounce every three hours, and the carbonate of ammonia the same. He is getting well, too. These two cases of double pneumonia are evidently both entering convalescence together as they entered the hospital together four days ago.

I propose making some remarks upon these two cases, directing your attention to some interesting points in their clinical history, and in conclusion speaking briefly upon the subject of the treatment of pneumonia in general. I have indicated to you what is generally

called double pneumonia,—pneumonic consolidation in one lung and heavy congestion in the other, as in the first of these two cases.

In the second case there was also some consolidation at the apex of the congested lung, making this more truly a case of double pneumonia than the other case was. Let me call your attention to a point worth noting. Here, in this, that is more truly a case of double pneumonia than the other, the respirations were never so frequent as in the first case, they never reached above 40, and not as in the former case go up to 100. Frequent respiration accompanies pneumonia, but in the first case the record was higher than in the second. From this we may learn an important lesson; that the frequency of respiration in pneumonia does not depend wholly upon the pneumonic process and upon the extent of lung it cripples, but also upon how extensive the congestion and other causes.

This is one point in the case which is instructive from a diagnostic and symptomatic point of view. Now, another point: it is very interesting that there was no rusty sputum in either case, although in both cases there had occurred, previous to admission, slight appearances of hemorrhage in the expectoration, but there was no dark-colored sputum, so common in pneumonia. Again, it is interesting to note that in both cases there occurred no crisis, no sudden appearance of convalescence, as where a temperature of 104° quickly falls to normal and there remains. If you ask the question, Is this absence of crisis characteristic of double pneumonia? I answer that it is the rule. It is in single pneumonia that you will see the sudden drop in temperature, so that a glance at the temperature chart will enable you to recognize the nature of the disease, and you can make a probable diagnosis of pneumonia without examining the patient simply by the sudden drop in the temperature. It does not occur in double pneumonia, because you then do not have the process confined to a single lobe or a single lung, but is in different stages in different parts of the lungs.

In both instances before you, the same line of treatment was pursued, except that in the latter we do not push the oxygen so freely. In both we used digitalis with whiskey and carbonate of ammonia.

I shall make some further remarks upon the treatment of these cases at our next meeting.

[The clinical lecture was resumed one week later, when both patients were again present before the class.—Rep.]

The first case, since the 4th instant, has received one-fortieth of a grain of strychnine every four hours during the day. On the same

day the digitalis was reduced, and two days later it was finally discontinued, and the ammonia was also stopped on the 6th. His temperature is now exactly normal; it has declined gradually without a crisis. Pulse 74; respirations 30. Physical examination of the chest this morning gives clearness on percussion over the left apex, and also the right, which is, however, not as clear as the left; this both anteriorly and posteriorly. Upon auscultation a vesicular murmur is heard at the apex on each side. There is some harshness of respiration over the right lower lobe posteriorly, also a few small moist râles on the left side. Anteriorly, there is still harshness of breath-sounds on the right side; the murmur on the left side is vesicular, but rather more harsh than posteriorly.

This man is fully convalescent, barring the slight consolidation on the right side, which will disappear in a short time. He has no cough, and there is no reason why an expectorant should be given. It is remarkable that with the relatively large amount of whiskey which he has taken, he has shown no sign of over-stimulation. It shall now be reduced to five drachms at the former intervals, and the strychnine continued as a tonic.

The second case is also convalescent. His treatment has been essentially the same as the preceding, except that not so much whiskey was given; he had half an ounce every three hours. There has been no crisis; he also convalesced by gradual cessation of the disease, by lysis. The consolidation has disappeared; the temperature is normal; he is well.

I said that I would make some remarks on the treatment of these cases of double pneumonia. I think it undoubted that they owe their safety to the free use of stimulants; but I think it also undoubted that the result was in great part due to the digitalis. I have learned to lean much on digitalis in the treatment of pneumonia, though its use may be abused. It is a drug upon which we can rely, but it must be given in full doses, ten minims every second hour is not too much to begin with. If there be bronchitis, carbonate of ammonia may be administered in as large doses as the patient's system will tolerate, and it is also useful as the consolidation breaks up. Quinine I am also inclined to give, especially in cases with a malarial history, but it forms no part of the usual treatment. Oxygen inhalations in these cases may be used freely. In fact, it is the patient himself who will generally urge this upon you, after experiencing the relief which the oxygen affords from the horrible difficulty in breathing. Oxygen, therefore, is of especial value in double pneumonia in relieving this distressing symptom. At the same time, should you ask, if it is absolutely necessary and is an essential part of the treatment, I am obliged

to say that it is not. It relieves symptoms and is valuable for the dyspnea, but, frequently as I have ordered it, I am not satisfied that it does much towards favoring recovery, even in double pneumonia.

Strychnine is used especially in the later stages of the disease. There has been a tendency to rate rather too highly the routine treatment by strychnine in cases of pneumonia. I do not think that it has the slightest effect upon the course of the disease. As regards any action upon the condition of the lung, I believe it utterly without value. But do not misunderstand me. I often give strychnine in pneumonia, especially in the later stages of the disease, and when I wish to sustain the heart and the strength of the patient; but not for its effects upon the course of the disease. Remember that pneumonia is a self-limited disease, and that we need to use such means as will tide the patient over and aid in resisting the tendency to death, until this period is past. As to the question of stimulants, I think that whiskey is absolutely indispensable in pneumonia, especially in hospital practice, where so many cases are alcoholic. I do not think it possible to successfully treat the latter class without alcohol in all stages of the disease. When you come to young persons or others of strong constitution, where there is no special need of it, you should withhold it or use it discreetly; but in double pneumonia it is more apt to be necessary, and is indicated in a more positive manner than in single pneumonia. It is also here that I have found nitroglycerine very useful. Given in divided doses, at short intervals, $\frac{1}{100}$ of a grain, doses hourly for five or six hours, and then at longer intervals, it does much to promote the flow of blood through the disturbed organ. Nor do I hesitate in instances of blue finger nails and general evidence of embarrassed right heart to resort to venesection, while the nitroglycerine is being pushed, and oxygen inhaled. Veratrum viride or aconite there is rarely occasion to use, except in the very early stages in vigorous adults; in cases which, indeed, are scarcely seen in hospitals, and not often even in private practice.

Now, as to the local treatment. Poultices I discard entirely. They are troublesome; they have no effect upon the course of the disease, and are annoying to the patient. They can only relieve pleuritic pains, and I make an exception in favor of their use in cases attended by much pleurisy. They are relics of a time when we entertained a different conception from that which we have at present of the pathology of pneumonia. All these applications interfere with the physical examination and prevent the daily observation which we desire to make of the progress of the patient. Cotton-wool rolled up in wad under the patient's arms does no good whatever. These local applications infinitely annoy the patient, and are in our way in

observing the course of the disease. One form of local treatment I will except, it is dry-cupping. This relieves congestion and increases the comfort of the patient. Blisters may occasionally be employed with advantage, especially in retarded resolution. Where pneumonia occurs in a strong and vigorous adult and is attended by such an amount of pulmonary congestion as to seriously embarrass the heart, and the symptoms of dyspnea demand prompt relief, free dry-cupping is generally effective, but it may be supplemented by cutting a few and drawing sufficient blood to afford relief; though general venesection is mostly preferable. The application of cold to the chest, in the form of ice-bags, has been found to relieve pain, and reduce temperature, but I cannot say that I have known it to favorably influence the course of the disease.

I have brought these two patients before you again to demonstrate the clinical phenomena and pathologic changes attending what is usually called double pneumonia. I have followed this up with a brief summary of that treatment of pneumonia which experience has shown me to be most successful, indicating to what degree this treatment is influenced by the fact that both of the lungs are affected. The successful treatment of the cases now before you, which were both of more than ordinary severity, will afford striking testimony to the value of the course followed in their management. They will also serve as illustrations of the usual method of treating pneumonia in our wards.

THE POSITION OF THE UTERUS AND THE MECHANISM OF ITS SUPPORT.

By Charles B. Penrose, M.D., Ph.D.,

Professor of Gynecology in the University of Pennsylvania.

The uterus normally lies with its anterior surface in contact with the posterior aspect of the bladder,—no intestines intervening. The absolute and the relative positions of the uterus depend upon the degree of distention of the bladder and the position of the woman. The uterus is pushed backward and the fundus is turned upward by distention of the bladder. When the woman is erect the uterus lies at a slightly lower level than when in the recumbent position, and the intra-abdominal pressure acting upon the posterior surface of the fundus turns the uterus more forward, so that the fundus lies nearer the symphysis pubis.

It may be said that in the normal woman the long axis of the uterus is approximately perpendicular to the long axis of the vagina.

The uterus does not surmount the vagina with the axes of the two structures in the same line, as is shown in some anatomical plates.

The cervix looks backward towards the coccyx. It is placed from .6 to 1.2 inches from the tip of the coccyx. The uterus is maintained in position by a variety of factors. The ligaments which have been described are eight in number,—broad ligaments, round ligaments, utero-sacral and utero-vesical ligaments.

With the exception of the round ligaments, which are muscular structures, the uterine ligaments are formed by peritoneal folds, including connective tissue, blood-vessels, lymphatics, and a small amount of unstriped muscle. When the woman is erect, the insertions and origins of the various uterine ligaments lie in the same horizontal plane. The insertion of no ligament is higher than its origin in the uterus. Therefore these ligaments do not act as suspensory ligaments when the uterus is in its normal position.

The truth of this fact is repeatedly demonstrated at operations. If the cervix be caught with a tenaculum when the woman is on her back, it may with but very little force be drawn downward towards the ostium vaginæ to the extent of one or two inches; and similarly the uterus may be pushed upward by slight digital pressure on the cervix from one to two inches above its normal position.

The ligaments of the uterus act as stays or guys. They steady it, and prevent too great lateral and fore and aft movement; they do not, when the uterus is in its normal position or at its normal level, sustain it against the force of gravity. When, however, the uterus, for any reason, falls an inch or more below its normal level, then the uterine ligaments may become, to a limited degree, suspensory in character.

In the normal woman the vagina is always closed, it is a slit in the pelvic floor, valvular in character. Consequently the abdominal and the pelvic viscera may be considered to be contained in a closed vessel, in woman as well as in man. The uterus floats in this closed vessel at a level which is consistent with its own specific gravity. If for any reason the specific gravity of the uterus is increased it sinks below the level at which it is normally situated.

Since, normally, there is no tendency in the uterus to change its position, the pressure upon it must be equal in all directions. The subject may, perhaps, be better understood by referring to a few simple facts in hydrostatics. If a fluid contained in a closed vessel is in a condition of equilibrium so that its various particles are at rest,

then the pressures upon any particle are equal and opposite in all directions. Otherwise the particles would not be in equilibrium, but would move. The bottom of such a vessel, however, is not, like the particles of the fluid, surrounded on all sides by the fluid; above it is the fluid, and below it is the atmospheric air. Any point upon the bottom of the vessel is subjected to a downward pressure equal to the weight of the column of fluid above the point, and this downward pressure is resisted by the strength of the material composing the vessel. If this material be yielding or elastic in character the pressure above may make the bottom protrude to a certain extent. A particle within the fluid immediately above the bottom of the vessel will be subjected to a downward pressure equal to the weight of the column of fluid above it, but this pressure will be counterbalanced not by any strength in the particle, but by a counter-force acting from below, equal and opposite to that acting from above.

A similar state of things exists in the female pelvis. The uterus floats at a certain level, and the intra-abdominal pressure acting from above is counterbalanced by an equal force acting from below, while the floor or bottom of this vessel (part of which is the perineum) is subjected to a force from above equal to the intra-abdominal pressure, and this force is opposed only by the strength of the perineum. If the vagina were an open tube, admitting air, so that the uterus above was in contact with the contents of the pelvis, and below with atmospheric air, then this condition of things would be altered. In this case the uterus would in reality become part of the floor of the vessel and would be subjected to a pressure from above equal to the intra-abdominal pressure, and to this pressure would be opposed only the strength of the uterus and its attachments. Such a state of things occurs when the perineum is torn and the vagina becomes a patulous open canal, and not a closed slit.

Therefore, when the opening of the vagina is torn and air constantly enters the vaginal canal, the hydrostatic equilibrium of the pelvic contents is destroyed, and the resultant of the forces acting upon the uterus is downward, and the organ has a tendency to fall or to prolapse.

The normal perineum and vagina do not sustain the uterus by furnishing a mechanical support from below any more than the bottom of a vessel sustains any single particle of fluid floating in it.

When the uterus tends to fall down or to prolapse its progress is opposed at a certain level by its various attachments. The ligaments become suspensory in character as soon as their uterine attachments are below their pelvic attachments. The cellular tissue,

fat, blood-vessels, etc., connected with the uterus restrain its downward motion. And, finally, this motion is restrained by what has been called the "retentive power of the abdomen," which is merely the atmospheric pressure acting from below on the contents of a vessel the top and sides of which are closed.

Refer again to a simple physical example. If a glass tube be filled with water, a finger placed over one end and the tube inverted the water will not run out. It is sustained by atmospheric pressure acting from below. If the finger be removed, atmospheric pressure also acts from above and the water will fall. If a hole be made in the side of the tube, atmospheric pressure will act through it, and the water below the hole will fall.

In order that the column of water be sustained, the side of the tube must be rigid or unyielding. If the sides of the tube yielded slightly to atmospheric pressure, they would sink in and a certain amount of water would escape.

The abdominal and pelvic cavities in the erect woman may be considered as a tube filled with fluid contents. The top of the tube is closed by the diaphragm, the sides are the more or less rigid abdominal walls and the back. The floor is the perineum. When the floor is destroyed, a hole is made in the bottom of the tube; the contents tend to fall, but the fall is resisted by atmospheric pressure acting from below. If the diaphragm and the parietes were rigid as glass, there would be no prolapse any more than there is prolapse of the water in the glass tube. If the parietes yield somewhat, the amount of fall or prolapse is proportional. Thus the retentive power of the abdomen is dependent upon the strength or rigidity of the abdominal walls.

Medical Graduation in Germany.

The total number of candidates on whom the degree of Doctor of Medicine was conferred by the universities of the German Empire in the course of the academic year 1894–95 was 1102; of these 516 were conferred by Prussian universities and 586 by universities outside Prussia. The largest number of medical degrees (163) was conferred by the University of Berlin, next came Würzburg with 143, Munich being third, with 139.

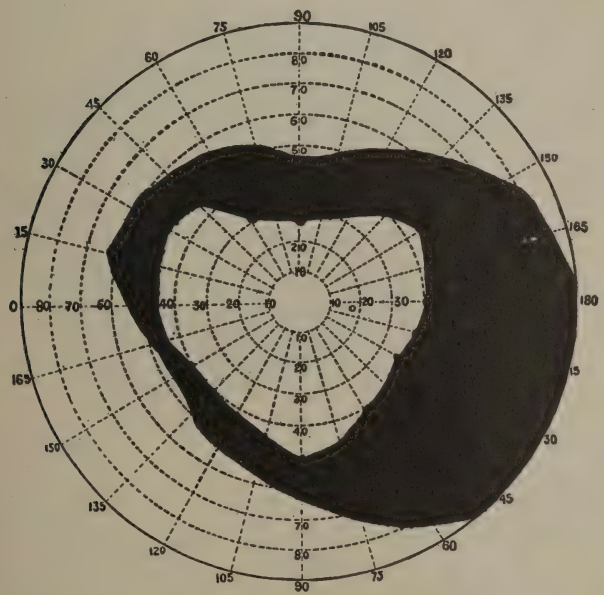
CLINICAL HISTORY OF A CASE OF CILIARY STAPHYLOMA AND EXCAVATION OF THE OPTIC DISK FOLLOWING TRAUMATIC CATARACT IN A SEVENTEEN-YEAR-OLD BOY.[1]

By Charles A. Oliver, A.M., M.D.,

One of the Attending Surgeons to the Wills Eye Hospital; one of the Ophthalmic Surgeons to the Philadelphia Hospital, etc.

On December 3, 1894, E. S., a 17-year-old boy, applied to the writer's clinic at Wills Eye Hospital with the history of having been struck in the right eye with a small potato one week previously. No treatment except the use of some domestic applications had been

Fig. 1.



employed. When first seen, there was a perforating linear wound in the cornea situated about two millimetres up and out from the summit of that membrane The edges of the wound were cloudy and appeared infiltrated. The lens capsule was ruptured, and there were

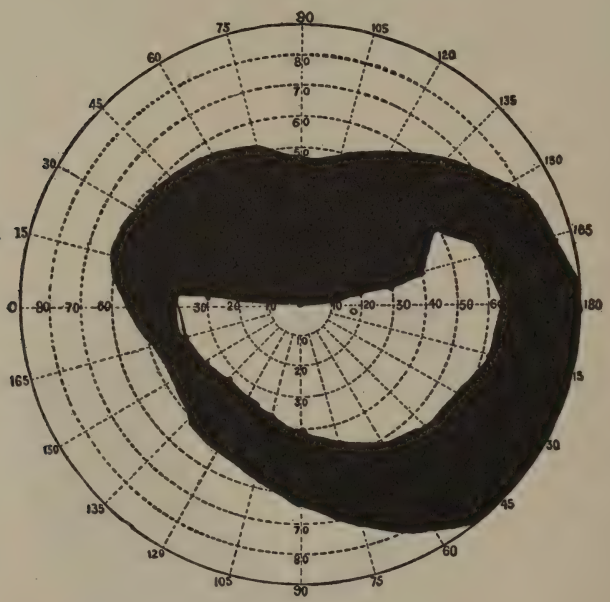
[1] Paper read and patient exhibited before the meeting of the Section on Ophthalmology of the College of Physicians of Philadelphia, March, 1896.

a few flakes of lens matter situated in the anterior chamber. The iris was not involved. No view of the fundus could be obtained. Vision was reduced to light perception in the field shown in Fig. 1. Intraocular tension was slightly above normal.

Upon consultation with Dr. William F. Norris, the patient was admitted into the wards of the hospital, and a soothing wash of boric acid with rest in bed. were ordered. Atropine was to be used if tension did not increase, but if this took place, as much lens material as possible was to be immediately evacuated.

Under this treatment, in two days' time, tension fell to almost normal and some of the lens matter had disappeared.

FIG. 2.



Two weeks later, the loose lens material having mostly gone and tension having still further decreased, the patient was discharged from the house into the dispensary service.

On the 8th of February, 1895, tension had become subnormal. The lens had nearly absorbed and there was some ciliary injection. The field of vision had become changed into that shown in Fig. 2.

One week later, intraocular tension had again risen, and in three weeks' time the sclera in the upper ciliary region began to show a series of faint, deeply-seated, bluish-black, radiary lines.

These symptoms continued until the 1st of April, 1895, when

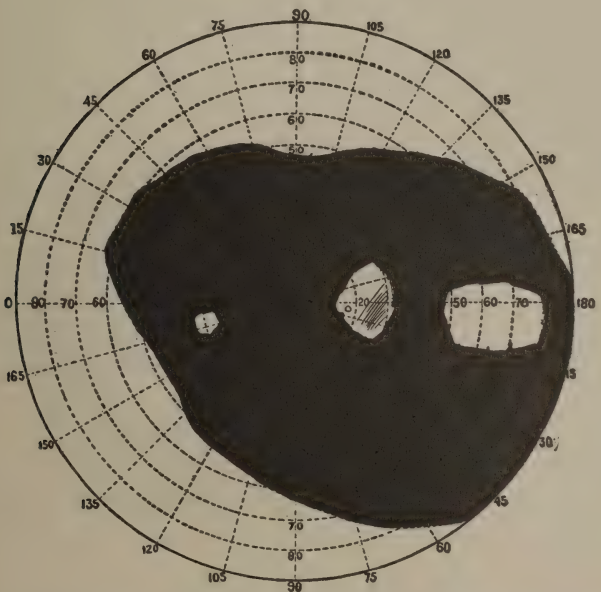
the fundus became visible through a series of grayish and brilliant vitreous opacities.

The nerve-head was deeply cupped and the retina was detached in places, these being the most pronounced to the temporal side. Intraocular tension remained slightly increased.

Four days later, the field shown in Fig. 3 was taken.

On the 20th of September, 1895, the writer again saw the patient. At this visit, intraocular tension was found to have increased to plus two. The eye-ground could be plainly seen with a + S. 7, D. There was a deep and complete glaucomatous excavation, the sunken surface of the disk appearing at places as though it were filled in with lymph

FIG. 3.

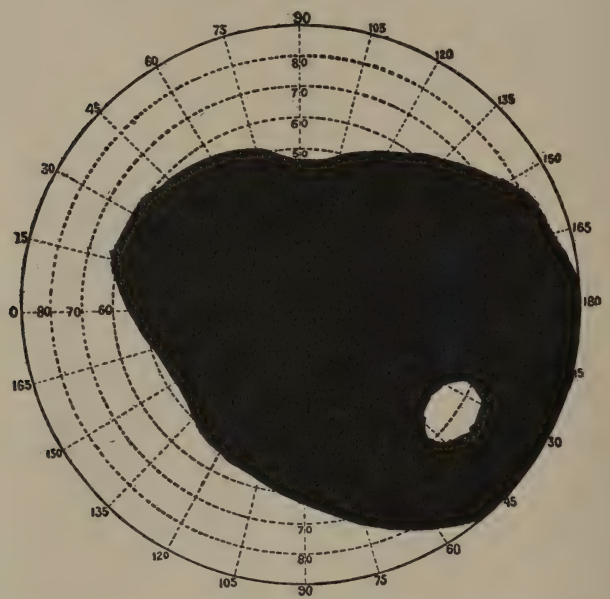


massings. The retina, which was somewhat degenerate, had fallen back into place. The nerve-head was greenish-gray in tint and its tissues were almost wholly atrophic. The retinal vessels were slightly reduced in size and the arterial currents could, at places, be barely seen. The iris tissue was thickened and degenerate, and its pupillary and ciliary borders were dragged backward, leaving its middle portion somewhat protuberant. The globe was enlarged, and the sclera, especially in the upper ciliary region, was much thinned, and showed several large staphylomata. As seen in Fig. 4, the field of vision was reduced to a small ten-degree area of light perception, situated far out in the lower temporal periphery.

In two months' time, in spite of the eserine, the gradual increase in the size of the globe and the scleral staphylomata, intraocular tension rapidly rose, and has remained fixed for nearly six months' time. The small excentric light-perception area in the lower outer part of the field of vision has remained unchanged. The vitreous opacities have steadily increased, until now it is almost impossible to see the fundus. There never has been any ocular pain or neuralgia of any character. The uninjured eye remains absolutely normal.

Remarks.—The clinical picture of this case of complicated secondary glaucoma is so complete, having been studied from almost what may be termed its very incipiency to the final result, and the

FIG. 4.



varying symptoms evolved from time to time, have been so at variance with what one would expect in such cases, that it offers itself as a most interesting and a most instructive study of this type of disease.

Unlike other similar cases of sudden obstruction to proper lymph-stream circulation, there remained in this case, from the very first, as shown by the fields of vision, and, as afterwards proven ophthalmoscopically, an element that may possibly complicate many more cases of the traumatic type of this disease than is at present imagined; and that is, retinal detachment. Again, the condition of the vitreous and its peculiarity of opacities, taken in connection with the history of the case, go far to show that there was a hemorrhage

into that humor which most probably might have been recognized ophthalmoscopically had the patient been seen a week earlier.

These, with a few though certain evidences of a low grade iridocyclitis, made the case still more atypical.

On the other hand, the progressive diminution of the field of vision; the gradual distention of the globe, and the localized tissue-bulgings in the upper ciliary region; the deep and characteristic cupping of the optic nerve-head; the reapproximation of the remaining areas of retinal detachment; and the late fixedly increased intraocular tension, all show the certainty of degeneration even in a young and yielding eyeball, when such tissues are subjected to a persisting increased intraocular pressure.

As answer to the vexed question of therapy in such cases, the writer will leave this for another and more extended communication, reserving the present brief though detailed account of the clinical history, as an interesting and useful exposition of a grouping of symptoms which have been carefully studied, and can be thus employed to illustrate the results of two conflicting contemporaneous conditions produced by traumatism; localized inflammatory reaction, and obstruction of lymph-stream circulation.

CUNEIFORM OSTEOTOMY FOR RELAPSED INVETERATE CLUB-FOOT.

By James K. Young, M.D.,

Professor of Orthopedic Surgery in the Philadelphia Polyclinic; Clinical Professor of Orthopedic Surgery in the Woman's Medical College; Instructor in Orthopedic Surgery in the University of Pennsylvania; Surgeon to the Home for Crippled Children.

AND

Charles H. Frazier, M.D.

Assistant Instructor in Clinical Surgery in the University of Pennsylvania; Assistant Surgeon to the Home for Crippled Children.

All of the history of this case obtainable prior to its coming under our observation may be summed up in the following: The first operation for the correction of the deformity, double talipes-equinovarus, was performed about four years ago, at which time both astragali were removed and in addition the tendo Achillis, anterior and posterior tibial tendons were divided. Unfortunately, after this operation extensive suppurative cellulitis ensued, rendering all attempts to retain the feet in their correct position futile.

About eighteen months ago a second operation was performed, consisting of a tenotomy of the tendons of the tibialis anticus, tibialis posticus, flexor longus hallucis, and division of the plantar fascia. The progress of the case after this operation was not recorded, so that we must at once pass on to the time when the case presented itself to us.

The previous attempts at correction of the deformity had evidently not met with success, for both feet still exhibited a deformity of a very exaggerated type.

On November 7, 1895, the right foot was operated upon by Dr. Young at the Home of the Merciful Saviour for Crippled Children. Briefly the operation consisted of a tenotomy, cuneiform osteotomy, and open section with division of the soft tissues. To describe the operation more in detail, an incision was made just below the tip of the external malleolus, commencing one-half inch posterior to, and ending one and one-half inches anterior to, its median line. Through this incision was performed the osteotomy, as recommended by Davis, removing a wedge-shaped section of bone involving portions of cuboid, scaphoid, and cuneiform bones. On the internal surface of the foot a second incision was made, perpendicular to the axis of the foot, midway between the tuberosity of the os calcis and head of the first metatarsal bone, dividing the soft structures of the arch of the foot. Then followed a subcutaneous tenotomy of the tendo Achillis. The operation was completed with correction of deformity by manual force, quite vigorously applied.

The internal wound, gaping as a result of this correction, was packed with iodoform gauze; the external wound closed with silkworm-gut sutures. Over all a sterilized dressing and a plaster-of-Paris cast was applied. It will be noted that the internal wound was in this case treated by the open method, that of allowing the deficiency to be filled in with granulation tissue. The subsequent course of the case was uneventful. The dressings were changed about every fortnight until healing was complete.

On December 5, 1895, the left foot was operated upon. The operation itself was precisely similar to that above recorded,—namely, tenotomy, cuneiform osteotomy, and open section of the soft plantar tissues. The distinguishing feature of the two cases lies in the method in which the internal wound was treated. It has already been noted above that in the right foot the open method was resorted to. In the left, however, Schede's method was employed, that of allowing the wound to fill up with a blood clot, with a view to its eventually becoming organized.

After-Treatment.—The dressings were allowed to remain on un-

FIG. 1.—Showing position of feet after operation.

FIG. 2.—Showing external and internal incisions.

FIG. 3.—Apparatus worn to prevent relapse.

changed till five weeks had elapsed, there having been no evidence that the wounds had remained other than perfectly sterile. On removal of the dressings both wounds were found to be completely healed and the position of foot most satisfactorily corrected.

The operation of cuneiform tarsectomy, or osteotomy, is only performed in the most severe cases of talipes-equino-varus, and in that case it is seldom required until all other methods, including removal of the astragalus, have failed. The present case was one of the worst cases that has come under our observation, and it would have been impossible to have restored the foot in any other manner.

The operation was performed with a short-handled gouge chisel, which facilitates greatly the removal of the wedge-shape piece of bone, and is preferable in every way to an osteotome or saw.

The Advantages of Schede's Blood Clot.—As far as we are aware this is the first time this method has been employed in this city. The asepsis must be absolutely perfect to enable the operator to confidently dress the case in this manner. A piece of protective dipped gauze was stretched across the gaping wound, a large antiseptic dressing was applied, and the foot was incased in plaster and suspended before the Esmarch tourniquet was removed. The wound remained sterile for five weeks, when the incisions were healed. The advantages are a smaller cicatrix, more perfect healing, and no post-operative dressings.

Apparatus Worn.—The apparatus, which the patient now wears to prevent a relapse, consists of a steel stirrup fastened to the shoe, with lateral uprights extending to the upper third of thigh, with a loose joint opposite the ankle and a stop-joint opposite the knee. Pressure-pads are applied at the outer ankle and inner knee. An elastic strap is attached to the outer side of the shoe and upper part of corresponding upright.

CALCULI OF UNUSUAL SIZE THAT HAVE BEEN REMOVED FROM THE BLADDER.

By Ellwood R. Kirby, M.D.,

Assistant Instructor of Clinical Surgery in the University of Pennsylvania; one of the Surgeons to the Out-Patient Department of St. Agnes's Hospital.

In operations for the removal of vesical calculi, stones of unusually large size are occasionally met with.

It has been my good fortune to have assisted Dr. J. William White in two cases, within the past few years, in which stones weighing nine and one-half ounces and over were removed by the supra-

pubic operation. One case recovered, the other died on the ninth day. The autopsy on the latter showed a calculus pyelonephritis,—the condition known as surgical kidneys.

In looking over the literature I find in some few instances the stone was removed whole, in others it was removed piecemeal, having been broken accidentally or intentionally, while in still other cases, from the great size of the stone and the lack of proper instruments, the operation had to be abandoned, the calculus being obtained post mortem.

(1) Ambrose Paré[1] relates the case of a confectioner, cut in 1510 by Collot, whose stone weighed nine ounces, and measured three and a half inches in diameter.

(2) Tolet[2] reports the case of a calculus weighing ten ounces, and measuring nearly four inches in diameter. The patient recovered from the immediate effects of the operation, when an abscess formed in the kidney from the presence of a concretion, and the patient died on the ninth day following the operation.

(3) Hamer,[3] of Norwich, removed by lateral section a stone weighing fifteen ounces. Its diameters were four and three-quarters inches in one direction, and three and one-half in the other. The patient, who was 58 years of age, survived, although the wound never entirely healed.

(4) Dunlap,[4] of Ohio, removed, after fragmentation, a stone weighing twenty ounces. The patient lived three years after the operation.

(5) Cheselden[5] removed a stone weighing twelve ounces and succeeded in curing his patient. No mention is made as to the variety of operation performed, nor whether it was necessary to resort to fragmentation.

(6) Klein[6] removed a stone, conical in form, weighing thirteen ounces, and measuring nine inches in circumference at its largest extremity. The patient recovered.

The same surgeon refers to a case,[7] in which a concretion weighing twelve ounces and two drachms was removed. The patient recovered.

(7) Mayo,[8] of Winchester, operated upon a patient, aged 28 years, and extracted a stone weighing fourteen ounces and two drachms.

[1] Lib. xxv, Ch. 19.
[2] Eve's Surgical Cases.
[3] Gooch's Surgical Observations.
[4] Agnew's Surgery, Vol. II.
[5] Eve's Surgical Cases.
[6] Praktische Ansichten der bedeutenen chirurgischen Operationen, p. 32.
[7] Journal für die Chirurgie, Vol. VI, p. 94.
[8] Eve's Surgical Cases.

It measured ten inches at its largest circumference. It was, however, broken into several large pieces in the attempt to extract it.

(8) Morand and Kesseling[1] each speak of calculi said to have weighed six pounds. No reports of the cases are given.

(9) Dickenson,[2] of England, successfully removed from a man, aged 62 years, a calculus of globular shape, composed chiefly of phosphate of lime, and which weighed eleven ounces. It was broken into several large fragments during extraction. The operation was followed by sloughing of the rectum, and when the case was reported several months later, a small fistulous opening still existed between that cavity and the bladder.

(10) Le Cat[3] records a successful operation on a boy, aged 12 years, a calculus being removed which filled the entire bladder. Neither weight nor dimensions are given.

(11) Frabricius Hildanus[4] records a case operated upon by Vitellius, in which the stone weighed twenty-two ounces. The patient was 21 years of age, and died under the operation.

(12) Geyer[5] witnessed an operation upon a boy, from whom a calculus weighing ten ounces was removed. It was so adherent to the bladder that it had to be broken and extracted piecemeal. The patient died on the third day.

(13) Verduc[6] refers to a case in which a stone weighing three pounds was removed. No particulars of the case are given.

(14) Pallucci, La Motte, Vidal, and Eller[7] all report cases of calculi weighing twelve ounces, which were extracted by operation, but in only one instance with a successful result.

(15) Preston[8] states that he saw at Paris a calculus which weighed fifty-one ounces, which was removed from a priest in 1690. The patient died on the table.

(16) Borellus[9] describes a case that was operated upon by Quesnotus, the stone weighing eighteen ounces. The patient did not survive.

(17) Marteau de Grandvilliers[10] removed a calculus of fourteen ounces, and another of twelve, with fatal results.

[1] Agnew's Surgery.
[2] Eve's Surgical Cases.
[3] Philosophical Transactions, London, Vol. XI, p. 238.
[4] Eve's Surgical Cases.
[5] Loc. cit.
[6] Agnew's Surgery.
[7] Eve's Surgical Cases.
[8] Loc. cit.
[9] Loc. cit.
[10] Loc. cit.

(18) Birch[1] extracted a stone weighing sixteen ounces from a patient in St. Thomas's Hospital. No mention is made as to the termination of the case.

(19) Deguise[2] removed a calculus, weighing thirty-one ounces, from a patient, aged 65 years, by the high operation, having previously opened the bladder through the perineum. Death ensued on the sixth day.

(20) Sir Astley Cooper[3] cut a man, 43 years of age, and extracted a stone weighing sixteen ounces, by the lateral operation. It could not be broken, and necessitated extending the perineal incision back to the sacro-sciatic ligament before it could be extracted. The patient survived the operation only four hours.

He also states[4] that the largest stone he ever saw extracted without its being broken, and at the same time the patient surviving, was one taken from a patient at the Norwich Hospital; it weighed eight ounces.

(21) Dalrymple[5] operated upon a patient, aged 43 years, for a calculus, which was afterwards found to weigh twelve ounces. The stone could not be broken, and after the lapse of an hour all hopes of extracting it were abandoned. The patient died three hours afterwards.

(22) Graefe,[6] of Berlin, removed by lateral section, from a patient, aged 38 years, a calculus weighing twenty-one ounces and four drachms. The patient died on the eleventh day.

(23) Mettauer,[7] of Virginia, has in his possession a calculus of urate of ammonium, weighing upward of sixteen ounces, which he removed by lateral section, the patient making a good recovery. No details of the case are mentioned.

(24) Godman[8] operated upon a patient at Cincinnati for a stone which was found to be so large as not to admit of crushing nor extraction. The wound was allowed to heal, and the patient subsequently walked to Carlisle, Pa. Here he was operated upon a second time with a like result by Dr. Given. After recovering from this operation he walked to Philadelphia and was relieved by Drs. Gilson and Physick. The bladder being opened, the stone was found to almost fill the organ, and it was, therefore, necessary to crush it before it could be extracted. The patient recovered in a fortnight, and again walked to Carlisle.

[1] Loc. cit.
[2] Loc cit.
[3] Loc. cit.
[4] Lancet, 1826, Vol. I.
[5] Eve's Surgical Cases.
[6] Loc. cit.
[7] Medical Record, Vol. XIV, 1878.
[8] Eve's Surgical Cases.

(25) Williams,[1] quoted by White, records a calculus of uric acid, weighing twenty-five ounces, being ten and a half inches in the short and twelve and a half inches in the long circumference, removed after death from the bladder of a patient, aged 81 years.

(26) Earle[2] reports a case in which the calculus weighed forty-four ounces. An attempt was made to remove it by lateral section, but only a few small fragments could be brought away, and the operation was, therefore, abandoned. The patient died on the tenth day.

(27) Marjohn[3] once met with an instance in which it was necessary, before the calculus could be extracted, to saw through the pubic bones. Neither the weight of the calculus nor the details of the case are given.

(28) McGill,[4] an English surgeon, once performed the high operation, without being able to remove the stone. The patient died on the fourteenth day, when the attempt to extract it was renewed, the straight muscles having been cut away at their inferior attachments. This method also failing, he sawed through one of the pubic bones, and then succeeded.

(29) Uytterhoeven,[5] of Brussels, reports a case of the high operation in a patient, aged 39 years. The calculus weighed upwards of two pounds. The patient died on the eighth day. The post mortem revealed a large abscess occupying the left iliac fossa, and the small intestines and mesentery were highly inflamed.

(30) Bullen,[6] of Ipswich, removed a calculus, weighing seven ounces, from a girl, aged 14 years. It was broken into many pieces before it could be extracted. Patient recovered.

(31) Dudley[7] removed a stone weighing nine ounces. The operation was followed by sloughing of the bulbous urethra, together with the accelerator urinæ muscle and a large portion of the perineal areolar tissue. The patient recovered.

(32) Roe[8] removed a calculus through the perineum weighing eight ounces. It was crushed before it could be extracted. The patient recovered.

(33) Monad[9] extracted a stone weighing ten ounces, the patient dying on the fifth day.

[1] Annals of Surgery, January, 1890.
[2] Lancet, 1853.
[3] Eve's Surgical Cases.
[4] Loc. cit.
[5] Loc. cit.
[6] Lancet, 1848.
[7] Southern Medical and Surgical Journal, 1850.
[8] British and Foreign Medico-Chirurgical Review, 1844.
[9] Bulletin de la Société de Chirurgie, Paris, 1881.

(34) Wier[1] reports a case operated upon by Gardner, of Providence, in a patient, aged 49 years. The calculus weighed twelve and a half ounces. A lateral section was done, but the operation had to be completed by the bilateral section. A rectal fistula followed, but it spontaneously closed.

(35) Browne[2] reports a case of calculus that he removed post mortem. The patient had suffered from symptoms of stone for twenty-five years, and always refused operation.

At the post mortem three calculi were found in the bladder: the first weighing three-quarters of a pound; the second one-half pound; the third forty grains.

(36) Holmes[3] showed a calculus, weighing twenty-five ounces, removed from Sir Thomas Adams. The patient died from an accident, aged 80 years, and had suffered from stone for about fifty years, but always refused operation.

From the post-mortem lesions found, Mr. Holmes states that a large stone may form and remain in the bladder without causing any serious disease of the kidneys.

(37) De Morgan, quoted by Holmes, reports two calculi removed after death from the same individual, one weighing thirteen and three-quarters ounces, and the other eight and a half ounces.

(38) MacGregor[4] made an attempt to remove what he believed to be a very large vesical calculus, but on account of the great size of the calculus and his inability to crush it, abandoned the operation. The patient died in a few days, and the post mortem revealed a stone weighing fifty-one ounces, situated in an enormously-dilated pelvis of the kidney, which occupied the usual position of the bladder.

(39) Thompson[5] reports a calculus removed after death, weighing twelve and a half ounces. At the time the patient was seen by the author his condition was such as to preclude all idea of operation.

(40) Vischer[6] reports a case of calculus weighing ten ounces and sixty grains, measuring nine and a half inches at its largest circumference, which he removed without fragmentation by the suprapubic method.

It was necessary in this case to incise the right rectus and bladder to the extent of half an inch before the calculus could be extracted. Patient recovered.

(41) White[7] reports the case of a man, aged 55 years, who had

[1] Medical Record, 1878.
[2] Transactions of the Pathological Society, London, 1868.
[3] Loc. cit., 1870.
[4] American Journal of the Medical Sciences, 1877.
[5] Lancet, 1857.
[6] Hahnemann Monthly, 1893.
[7] Annals of Surgery, 1890.

suffered with vesical irritability for twenty-six years. An attempt was first made to crush the stone, but as the lithotrite would not hold, a suprapubic operation was done. The stone weighed nine and a half ounces. The patient recovered.

(42) A second case was operated upon by White in January of 1896, and a stone weighing nine and a half ounces plus was removed with some difficulty. A lithotrite was first introduced into the bladder and an attempt made to crush the stone, but, after having been grasped by the jaws of the instrument, it could not be rotated from the right side of the bladder, where it apparently had become encysted.

The suprapubic operation was done and the calculus removed, it being first necessary to separate, by the finger, the stone from the inner wall of the bladder, to which it was firmly adherent.

The patient died on the ninth day, the post mortem showing the presence of calculus pyelonephritis.

(43) Milton[1] says that large stones are frequently seen in Egypt, and in his collection of 158 stones, he has six which weigh fourteen, three and a half, four and a half, six, thirty-four and a half, and seven ounces respectively. The case he reports was an Egyptian, aged about 60 years, who had suffered with vesical symptoms for many years.

A large stone was diagnosed, and an incision was made from the umbilicus to the pubes. The bladder was then opened on the extraperitoneal surface, to make sure that the calculus was single, and at the same time to thoroughly disinfect the bladder. The calculus was found to be so large that it was necessary to dissect back the peritoneum from the bladder as far as possible, and then incise the entire superior and anterior aspects of the organ, the general peritoneal cavity being shut off with sponges. An attempt was now made to remove the stone, but the wound would not permit of extraction. It was then necessary to make two lateral incisions into the bladder before the stone could be removed. The patient had a great struggle for existence during the first eight days.

On the fifth day the retained catheter failed to act, and a perineal cystotomy was done, so as to drain the bladder.

On the thirty-fifth day the patient presented signs of another calculus, and the perineal wound, which had closed, was reopened, and a uric-acid stone weighing a gramme and a half was removed. The power of vesical contraction was lost after this operation, and necessitated the keeping open either the abdominal or perineal wounds

[1] Lancet, 1893.

for drainage. Two months after the first operation the patient died. The post mortem revealed advanced kidney-disease.

The calculus weighed thirty-four and a half ounces, and its largest diameters were four and six inches.

The stone was presented intact to the Royal College of Surgeons, England.

It will be clearly seen from the above reported cases that stones even of large size may occasionally be successfully extracted, yet it is equally certain that they must be regarded as so many exceptions to the rule, rather than the rule itself. Most generally the patient has either died from shock during the operation, or from the subsequent effects of inflammation.

THE EXTRAORDINARY ACTION OF COLD IN A CASE OF SCLEROSIS.

By C. M. Hollister, M.D.,

Beloit, Wis.

The patient is a man 36 years old, thirteen years a teacher, eleven years a professor in astronomy, accustomed to night-work in an observatory, until 2 A.M., at all seasons of the year.

Family history is negative, with the exception of the mother, who has been a victim of nervous prostration and nervous dyspepsia for the last thirteen years.

Previous History.—He had the usual diseases of childhood, also for a number of years was troubled with insomnia and severe headache, but these passed away before the present trouble began.

The general condition of the patient has been good, so that he has passed satisfactorily five times the examination for life insurance, the first time in 1885, the last in October, 1893.

History of the Present Trouble.—In 1889 he had nervous prostration at the close of the summer term, resulting in inability to walk more than a mile without extreme fatigue in the legs, but in a month was feeling all right again. In the spring of 1890 the left arm became numb and practically useless; he was unable to work for six months; under treatment in Boston, the left index-finger was opened and a small neuroma removed from the site of an old injury fourteen years before; perfect recovery of the use of the arm. In the summer of 1891, he noticed fatigue in the legs, and was inclined to stumble after walking two or three miles, there was increased disinclination to walk over half a mile, until the summer of 1892.

In the summer of 1892, he was engaged in removing a clock from one tower to another, which involved going up and down fifty feet, about forty times a day; at one time he strained himself in trying to prevent a pendulum from falling; after this he was unable to walk more than a quarter of a mile for a month; both legs were numb, the left leg dragged in walking. He was treated with faradic electricity, general tonics, and hot and cold applications for four weeks. The numbness disappeared and he could walk between one and two miles without difficulty; he was massaged daily for six months, during which time he increased in weight and general tone of the system. From this time practically no change occurred until June, 1893, when he spent a week at the World's Fair; walking was painful, especially in the cords of the knee, with a general feeling as though each step would be the last. In July, 1893, he was married; in the same month he had great pain.

In the summer of 1892, the left leg dragged, but recovered; in the fall of 1893, the right leg dragged; at the present time can stand on the right leg and flex the left to the body, but when standing on the left leg he cannot flex the right at all. In February, 1894, in delivering a lecture in a small town, he was compelled to sleep in a cold room. He became thoroughly chilled, and was unable to leave the house for a week afterwards, has not walked over a quarter of a mile since, and from this point loss of ability to walk progressed. In June, 1894, could not walk over two blocks without extreme fatigue in the legs. In September, 1894, last, walked one block without assistance. In April, 1895, began to use crutches; since June, 1895, has used them in-doors and out. The sacral region of the column is the only part apparently affected, except very lately there has been a feeling of irritation on the anterior part of the coccyx.

In the spring of 1890, he first noticed lack of force in micturition. In the summer of 1891 he had difficulty in retaining urine for more than two hours; this continued practically unchanged until the spring of 1895, when gradual improvement was brought about by treatment; this improvement has been progressive until now the patient can retain urine for four or five hours, although there is still lack of force and inability at times to completely empty the bladder.

The urine tends to pass spasmodically, and falls at the feet; sometimes there is a sudden stoppage of the flow, due to pain.

The urine has been repeatedly examined and found to be perfectly normal. The bowels were inclined to be costive, until within two years, when they have been kept loose by abdominal massage.

The sexual functions are depressed. Clonic spasms of the muscles prevent bending of the knee, but not of the hip; the muscles

become very tense, and those of the right calf tend to draw the heel up and the toe down when attempting to walk; also the right foot tends to be flexed and inverted, at the same time the right knee tends to be inverted. Exaggerated reflexes were noticed in 1890, and have become gradually more exaggerated, especially when tired; spasmodic reflexes are caused by a slight tap on the patellar tendon or by touching the toe to the floor, accompanied by rigidity of the muscles.

The pain in the case has been somewhat peculiar to sclerosis, first noticed when changing the clock before mentioned. The character of the pain is as though the legs were wound with cords until the circulation is impeded, and in addition as though seized by intense cramps.

The first period of pain lasted four or five weeks, then was mitigated for a year; after that the sensation of pain came on slowly again, and was first noticed as a band two inches in width extending around just above the knee; this gradually intensified and continued up as far as the lumbo-sacral region. The pain seems to be more posteriorly than anteriorly and deep seated in the muscles.

The pain is more marked in the morning than at night, but never absent. It is relieved somewhat by flexing the legs and is more intense when the feet are swollen. The pain is not lessened by cold baths, thermo-cautery, or cannabis indica; slightly by acetanilide; opium, in any form, has never been taken. Pain is made almost unbearable by taking warm baths or local use of counter-irritants. The patient is particularly well as to the use of the arms or mind, and can do as much mental work as ever, also finds no difficulty in using a type-writer; appetite good.

All manner of treatment has proved of but little value, either alteratives, anodynes, electricity, or massage; still, the latter seems to relieve the spastic condition of the muscles and to some extent gives tone to the system. At the present time the patient's general condition is good, and for the last three months has been gaining in weight, and during this time cannot see that the disease has progressed, although he has been constantly at work.

What appears to be remarkable is the effect of chilling on the system. In the winter of 1893, the patient noticed that after remaining in a temperature of 10° F. above zero, or lower, for about an hour, he could walk comparatively well, and with much less pain. Many times the present winter, after riding without overcoat or heavy lap-robe, at a temperature of zero, for three-quarters of an hour, he could repeatedly walk across a room twenty feet wide, taking steps about twenty inches long, and without the aid of crutches; at this time also

there was no spasm or severe pain. This ability disappeared in about fifteen minutes after coming into a warm room.

What does this effect of cold indicate as to the mode of treatment and also prognosis?

What is the diagnosis of the case?

REPORT OF A CASE OF ABDOMINAL ANEURISM.

By William W. Young, V.M.D., M.D.,

Nanticoke, Luzerne County, Pa.

Hugh R., white; aged 49 years; born and residing in Philadelphia; admitted to Philadelphia Hospital August 24, 1895.

Family History.—Parents dead; father of some form of dropsy; mother, after a long illness, in which jaundice was a prominent symptom; one sister died of dropsy, which began in the feet and gradually ascended; one in confinement; one brother died after an operation for removal of a tumor of head of femur caused by traumatism. After the patient's death it transpired that he had a wife and two seemingly healthy children in Trenton, New Jersey, and that the wife had been treated in this hospital some years previously for syphilis, contracted from the husband. Whether before or after birth of the children is not known to a certainty.

Previous History.—Has often been sick, frequently from rheumatism, so-called, and lost sleep at night by reason of pain; has had pain in the back for some years, and referred it always to kidneys being affected; had scarlet fever at age of 19 years; gonorrhea several times and stricture as a result,—treated at this hospital; primary syphilitic lesion nineteen years ago; malaria in 1877, and in childhood some minor affections; grippe two successive years; lately often felt dull and listless, never sick enough to keep him from work; always drank heavily and continuously, and used tobacco freely, both chewing and smoking.

Present Trouble.—This history being taken October 21, 1895. Three months ago began to have pain in side and vomiting spells; lassitude; loss of sleep and appetite and felt unable to work. Admitted to this house with these symptoms and a dull, numb feeling down the leg. After admission noticed a pulsation affecting the left hypochondrium; slow, expansile heaving, developing gradually and affecting to the median line, anteriorly and posteriorly, most noticeable to the left and posteriorly about two inches below costal margin

and in the post-axillary line. At this point bruit is heard with difficulty by immediate auscultation and only with the subsiding wave of the pulsation. This condition existed for some time, the prominent symptoms being pain in back, increased by motion and upright posture, loss of sleep, vomiting, weakness, shooting pain from back to left thigh and knee, once shifting to right side, to return again to left.

Cough of no great severity and with little expectoration; some constipation, the overcoming of which did not lessen pulsation; urine normal in specific gravity and constituents, and varying from fifteen to twenty-eight ounces daily; appetite poor, vomiting a variable symptom, no pupillary changes; reflexes generally good; pain increased by pressure over the pulsating area always; the extent of the tumor in the hypochondrium was doubtful as it was overlaid by the intestine and extended upward to within the costal margin, but no signs could be detected to the right of median line, either anteriorly or posteriorly, and "bruit" was heard only at the single spot previously designated. Pulse was full, strong, slow, and regular.

October 25, 1895. After observations, extending over two months from time of admission, Dr. William E. Hughes and Dr. S. Solis-Cohen have agreed that there is here present an aneurism of the abdominal aorta. This diagnosis being also made independently by Dr. John Deaver, who refused to interfere surgically, saying that there was no possibility of its being anything but an affection of the main trunk, and therefore operation would be useless. During the time previous to this the symptoms were sometimes so slight as to render the diagnosis doubtful.

On examination to-day the pulsation is changed in character and position, now it is situated well up under the left thorax and extends past the median line anteriorly. The stomach seems less encroached upon. Pulse is quicker and more rapid, and therefore the aneurismal pulsation is less and not so painful; bruit is now plainly heard, plainest in epigastrium; chest is heaving at the rate of 118 per minute; there are no shooting pains, merely a numb feeling over affected area; no vomiting.

November 2, 1895. *Heart.*—There has always been a mitral systolic murmur; the position of dulness and the impulse changes from day to day; position of impulse tends to travel upward and is now at fifth to seventh ribs, left side, and more jerky and frequent than formerly.

The *double bruit* is seemingly close to the ear in the normal area of cardiac dulness, but the sound cannot be separated so as to differentiate whether the phenomenon be due to the aneurism or the contraction of the heart itself.

The chest measurement on the left side at base is nineteen inches, while on the right side seventeen and one-eighth inches is the measurement.

Expansion.—Left, *nil;* right, one-quarter of an inch.

Dulness has gradually grown up along the mid-sternal line to third intercostal space, extending gradually about the chest under the axilla to the spine, and from xiphoid cartilage to one inch below the costal margin following this in a parallel manner to left hypochondrium, mid-axillary line, and dipping down and backward to the lumbo-sacral junction, there merging into the dulness of the spine and gluteal mass. There are no spots of resonance in the back on the left side, and examination over this area causes pain to be experienced for some hours afterwards. The impulse for four or five days has been stationary—as here described—and most marked at mid-clavicle between fifth and seventh ribs (November 2, 1895). At third interspace, mid-clavicular line, a bubbling sound is heard both by the unaided ear and stethoscope, synchronous with the pause between in- and expiration. Tubular breathing present. Above third interspace on left percussion gives Skoda's resonance. Below this point with tolerable regularity along the interspace as a dividing line is found dulness.

Palpation shows loss of tactile fremitus below the line mentioned and its presence above slightly less than normal (probably due to the lessening of entire lung area doing functional service). Egophony also present.

Right lung shows compression by a high, sharp note on percussion and dulness extends up to the fourth interspace, becoming lost below in that of the liver.

The subjective symptoms are now mostly dyspnea and pain with a sharp, shooting pain in the left scapular region. Morphia has been increased to half grain t. d. and t. n., with little effect on the pain. Potassium iodide and barium chloride seemed useless from the first in any indication. The pain in the hip and knee has been less troublesome for a few days.

November 5, 1895. Dulness to-day extends on left side to third interspace, from mid-sternum to spinal column, following the interspace irregularly. In the area below this line following the old line of demarcation, below, breath-sounds are absent, as are voice-sounds and fremitus. Above the line the sounds and signs previously noted are present in a still more exaggerated condition,—viz., egophony, increased fremitus, increased high-pitched percussion resonance with an almost metallic quality, and bubbling râles, large, and heard close to the ear. On the right the change is not at all marked, and is only

noticeable in the still more embarrassed breathing. No heart-sounds are discernible as such, only a confused jumble of sounds, with a double time in a general way, but mixed with the gurgle of the fluid present in the pleural cavities and heard as rather distant sounds.

The pulse is markedly weak and dicrotic, the dicrotic wave being almost as strong as the actual impulse. Pain is intense, most marked on motion, and situated in the back. Once, on assuming the sitting posture, he complained of paralysis in the left leg, and the assistant had to lift him into bed, the leg being quite useless. After this he could not raise his body from the bed and the enlargement of the left chest seemed more pronounced. Attempts to pass the tape gave so much pain that they were not persisted in, and no measurement was made.

Facial expression at this time was very instructive as indicating exquisite pain. Delirium is present, and the patient seems quite anxious as though fearing some serious occurrence imminent. The delirium is of low type and has been present five days (since November 1, 1895). Lips are drawn and face pinched. Vomiting once more is a prominent symptom.

Urine, eighteen ounces and less in twenty-four hours, albuminous, and containing numerous granular casts. Stools only voided with difficulty after the desire for defecation is obtained by drugs. Cyanosis present about face and finger-tips.

On evening rounds to-day, November 5, 1895, the patient, with a characteristic stubbornness, said he would sit up and eat his breakfast in the morning. This was 7.30 P.M., at 9.30 P.M. he was dead, presenting the appearances attendant upon internal hemorrhage and looking more as though he had been dead ten hours than ten minutes.

Now the dulness seemed somewhat less than during life, but returned after twelve hours as before, so that at post-mortem examination all signs on percussion were as noted during life.

Post mortem.—By Dr. E. B. Sangree. Dictation by Dr. W. E. Hughes. Body well nourished. Rigor mortis well marked.

Abdominal cavity contains small black clots of semifluid blood. Stomach lies almost vertically, its left border corresponding to the middle line.

Liver lies also almost vertically, but less so than the stomach, its left lobe being pushed up and its right lobe downward.

Diaphragm is displaced to fourth interspace on right side.

The whole of the left half of the abdominal cavity to within two inches of the ilium is filled out with a moderately firm mass, carrying in front of it the colon, which is dissected off from it with difficulty. The anterior wall of the mass measures in length thirty centimetres,

breadth eighteen centimetres, depth ten centimetres. It is so adherent laterally and posteriorly that it can be taken out only by dissection.

It is composed centrally of firm, laminated clot, peripherally of soft black clot merging into the laminated clot. Specially is the black clot prominent in the lower half of the mass.

The rupture into the abdominal cavity has apparently taken place posteriorly and a little also at the lower border of the spleen. The aneurismal cavity communicates with the aorta by an opening in the posterior wall of the aorta seven centimetres in length, involving about one-fourth of the circumference of the vessel, the lower edge of the opening being opposite the inferior mesenteric artery. This opening has firm, round, and smooth edges directly continuous with the lining of the aneurismal sac.

Left pleural cavity contains about a half pint of clear, serous fluid, covering the lung. Pressure upon the lung causes this fluid to become blood-stained.

Right pleural cavity contains also a quantity of serous effusion. There are no parietal adhesions in either cavity, but the left base is strongly bound down to the diaphragmatic pleura.

Pericardial sac contains small quantity of clear fluid; no adhesions. It and the heart, in common with other organs, are displaced upward and to the right.

Heart contains some fibrous clot. Mitral valve a little thickened. Muscle quite healthy.

Left lung completely atelectatic in lower lobe and lower half of upper lobe. Upper lobe normal in appearance of upper half and the line between the two areas well marked. Lower lobe adherent to diaphragm; adhesions fairly well organized. Left lung compressed; lower lobe entirely flat and extending to third interspace.

Right lung effuses a large quantity of fluid on pressure, clear in upper lobes, blood-stained in lower. Upper and middle lobes strongly adherent. Adhesions edematous. Right lung pushed by intra-abdominal pressure up to the fourth rib.

Spleen constitutes part of the upper and anterior capsule of aneurism. Length 10.5 centimetres, breadth nine centimetres. It is flattened, substance superficially soft and strikingly pale, and towards the posterior extremity pale-yellow and slightly fibrous. The portion lying beneath the softened and yellow part is eroded by the aneurism without infiltrating its substance. The left suprarenal is very friable, light-yellow in color, and embedded in a clot of blood immediately beneath the aneurismal sac.

Left kidney constitutes in part the wall of the aneurism and a part

is embedded in clot. It is flattened, resembling normal spleen (on section). In the upper part no differentiation between cortex and medulla can be made. As the lower part is approached, the texture is more normal and differentiation can be made, but the cortex is diminished, is very homogeneous and shiny. In the lower end irregular areas of cortex are light-yellow and suggest purulent infiltration. Pelvis little dilated, filled with a purulent, blood-stained liquid. Vessels patulous, organ not weighed, as it would destroy specimen to dissect it away. Right suprarenal, normal.

Right kidney.—Cortex noticeably increased. Surface pale and quite irregular. On section surface is translucent and shiny and is uniformly pale. Weight, 270 grammes. Except in location, the stomach and duodenum are normal.

Pancreas forms part of the wall of the aneurism and is rather firm.

Liver firm, surface mottled by pallor of the periphery of lobules. The left extremity of the left lobe is atrophied by pressure of the growth presenting very little naked eye appearances. There is a well-marked line between the atrophic and non-atrophic portions.

Aorta.—Thoracic aorta somewhat dilated. Few atheromatous patches. Abdominal aorta quite atheromatous, especially in the region of the rupture.

Bodies of the twelfth dorsal and first lumbar vertebræ extensively eroded. Second lumbar vertebra less so. Lower ribs also eroded, the last one entirely cut through on the left side.

MEMORANDA.

CONTRAINDICATION IN THE USE OF SALOL IN NEPHRITIS.

An experience with two cases has led me to think it worth while to make known a more than possible danger in the use of salol in cases of nephritis. The first of these was a very serious case of chronic nephritis, in which, after a time, diarrhea became so serious as to demand control. Knowing the danger from opium in these cases, I sought some other means than this for the purpose, and advised ten grains of bismuth subnitrate and five grains of salol to be given once, and to be repeated if ineffectual. The second dose was

not required, as the diarrhea promptly ceased, and with it the urine, which had previously been most copious, also fell off, and no measures which we could think of had any effect in restoring its original copiousness. There was not at first suppression, but the quantity gradually diminished until it ceased altogether, and the patient died a couple of days later.

A second case was that of a woman pregnant with her second child, complicated by severe puerperal nephritis, in which the urine was almost solid with albumin, was as black as ink, with altered hemoglobin, and contained large numbers of dark-granular, pale-granular, and waxy casts, with compound granule-cells. Under rest in bed, nourishment limited to milk and Vichy, which she drank copiously, the color of the urine gradually returned to the natural, and the quantity of albumin was largely reduced. A condition of constipation was gradually substituted by a natural state of the bowels, and later—without evident cause—a looseness of the bowels. For this looseness I ordered ten grains of bismuth and five grains of salol. After the administration of one powder the urine again became black, as first noted, and resumed the other abnormal characters. It did not, however, go on to suppression, and under appropriate treatment was assuming a more natural character, when, fortunately, she miscarried and was delivered of a dead eight-months' child. Afterwards convalescence was rapid. JAMES TYSON, M.D.

REPORT OF CASE OF FOREIGN BODY IN RIGHT BRONCHUS; RECOVERY AFTER SIX DAYS' RETENTION.[1]

ON January 6, 1896, S. H., female, 11 years of age, placed in her mouth a setting from a scarf pin. By accident it suddenly slipped down her throat, and she immediately developed a severe attack of cough, lasting five or ten minutes.

The stone has since been found to be a flattened one, one-quarter inch in greatest diameter, a quarter less than this in thickness. About it were the little metallic arms such as usually support a jewel, slightly increasing its diameter. The base had been broken off smoothly.

She had much wheezing and cough soon after the accident, but this subsided somewhat, although still present when seen by Dr. G. M. Black, twenty-four hours after the accident. A careful examination of the upper air-passages was, however, entirely negative, and he referred the case to me for examination of the chest.

[1] Read before the Denver and Arapahoe Medical Society, February 11, 1896.

This gave negative signs excepting in the lower right back. At a point just interior to the lower angle of the right scapula marked wheezing was found, resembling that of a severe attack of asthma, developing suddenly as one approached this point from above. Below the respiration was faint, and the wheezing was heard more distantly, but still with distinctness. The voice was transmitted normally on both sides.

There was a little pain in the left side, vague and inconstant, and attributed to the strain of the severe cough of the previous day.

Dr. Clayton Parkhill was asked to see the case with reference to the advisability of attempting the removal of the stone by inversion or other means. Examination confirmed the diagnosis, Drs. Black, Parkhill, Hopkins, Fish, and the writer investigating the case carefully both before and after the attempted removal.

By Dr. Parkhill's advice, at St. Luke's Hospital, on the second day, the patient was inverted, and, while held in this position, caused to cough and sneeze vigorously by inhalation of snuff. The only result, as shown by subsequent exploration of the chest, was the admission of more air past the obstruction, its position having changed slightly or, more probably, mucus having been removed from around it by coughing.

Dr. Parkhill advised no further interference at this time, and the patient was treated expectantly. No change could be noted in the signs until the 10th, although there had been, meanwhile, some cough, slight fever, and quite sharp pain in the chest, not very definitely localized, and relieved by morphia in moderate doses. At 5 P.M., on the date mentioned, the patient presented no abnormal signs in the chest, and was wholly free from pain, although suffering severely three hours before.

The mother was told that the foreign body had evidently become dislodged from its original position, was probably loose in the larger bronchial tubes, and, inasmuch as it might be dislodged by coughing, was advised to watch carefully for it in event of cough. At 8.20 the next forenoon the stone was expelled with moderate cough, and the patient has been free from symptoms since that time.

The case is of interest because of the considerable time of the retention of the body, its location in the bronchus leading to the right lower lobe, and its spontaneous dislodgement.

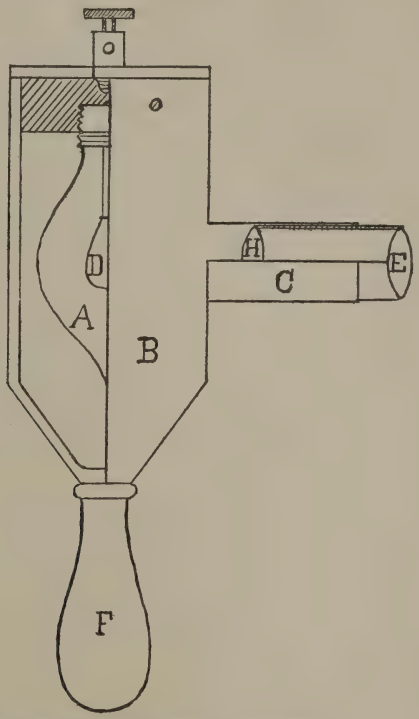
J. N. Hall, M.D.,
Professor of Therapeutics and Clinical Medicine in the University of Colorado, Denver, Col.

AN ELECTRIC LAMP FOR EYE-WORK.

THE object of the small electric lamp, herewith figured, is to afford an even and intense illumination over a circular area, sufficiently large to cover the entire cornea. For lighting up the field of operation in cases of foreign body, secondary cataract, etc., as well as to enable teachers to demonstrate readily to students all opacities of the cornea and the lens, this lamp has proved invaluable.

It is small and can be carried in the vest-pocket.

It consists of a small pear-shaped electric lamp, A (three candle-



Showing improved electric light for eye-work.

power, six volts), completely encased in a metal covering, B, which is blackened on the inside so as to prevent the reflections from the inner side of the lamp, which would focus at other distances and interfere with the distinct view of the illuminated field. A small tube, C, extends from the casing at right angles, opposite the wire loop, D, of the lamp; this contains another tube, E, freely movable, which holds a condensing lens, H, of two inches focus. By varying the distance of this little lens from the incandescent lamp, we can obtain at will,

either convergent, parallel, or divergent rays. At the bottom of the casing is a small handle, F, by which it can be firmly grasped. The lamp is run by a storage battery.

HOWARD MELLOR, PH.B., M.D.,
Chief of Eye Dispensary, University Hospital.

ALUMNI NOTES.

IN HONOR OF WILLIAM PENN.

AN elaborate programme has been completed for the observance of Arbor day in this city, on April 10. Governor Hastings has accepted an invitation to be present, and will plant a tree in honor of the first governor of this commonwealth, William Penn, on the campus of the University of Pennsylvania. Considerable interest will be attached to this proceeding, as the tree to be planted will be a scion of the Penn Treaty Elm. The sprout to be placed in honor of the man who stood beneath the parent branches and bartered with the red man for the State has been promised Mr. John Berkinbine, president of the Pennsylvania Forestry Association, by General Paul A. Oliver, of Wilkesbarre, who has a tree fifty-six years old grown from a branch of the original tree.

In the evening a symposium will be held in which Governor Hastings, Provost Harrison, and Mr. Berkinbine will take part.

FOR THE DORMITORIES.

PROVOST CHARLES C. HARRISON recently announced a gift of $2000 towards furnishing some of the rooms in the dormitories. No name was given with the gift.

TWO VACANCIES IN THE BOARD OF TRUSTEES.

WITHIN a month the Board of Trustees of the University has lost two of its members through death. Judge Henry Reed died on February 23, and the Rev. Charles W. Schaeffer, D.D., LL.D., died on March 15. Dr. Schaeffer was one of the oldest members of the board.

A BEQUEST OF $10,000 TO THE UNIVERSITY.

FRANCIS C. MACAULEY, who died on March 15, 1896, bequeathed to the University the sum of $10,000, the interest of which, after the

death of his brother, is to be expended in the purchase of books relating to Dante and Tasso, and in the making of archeological researches in America.

A Study-Room in Houston Hall.

The Library Committee of Houston Hall has decided to equip a study-room for the use of its members; a room on the third floor has been set aside for this purpose, and suitable French, Greek, Latin, and German lexicons, together with other reference books, will be placed in the book-cases at once. To provide for the proper use of the room a "study club" will be formed, and each member, on the payment of a nominal fee to the club custodian, will receive a key that will give him access to the room at all times.

Written Examinations.

On the recommendation of the Deans of the Medical and Dental Departments, the professors have generally agreed to adopt a system of written examinations at the close of this term, instead of the oral ones now in vogue.

Appointed to the Staff of the Philadelphia Hospital.

At a meeting of the Department of Charities and Correction, held on March 20, 1896, Dr. Alfred Stengel, of the Class of 1889, was elected a visiting physician to the Philadelphia Hospital, and Dr. Herman B. Allyn, of the Class of 1885, was elected medical registrar in the same institution.

Declined the Appointment.

Dr. John B. Deaver has declined to accept the appointment as consulting surgeon to the Norristown Hospital for the Insane on the ground that services to State institutions should not be rendered gratuitously.

The Number of University Graduates.

Since the founding of the University of Pennsylvania in 1740, the number of graduates has reached 15,500, which places the institution third in the list in the number of college graduates. Only Yale and Harvard have a larger number.

For the Students' Aid Fund.

At a meeting of the Executive Committee of the Sixteenth Annual Charity Ball, the treasurer was authorized to set apart $2300 for the Students' Aid Fund of the University of Pennsylvania.

The Leidy Memorial Fellowship in Anatomy.

Subscriptions to this fund in any amount, however small, will be gratefully accepted and promptly acknowledged. All communications should be addressed to the Secretary and Treasurer of the Committee, Dr. J. Howe Adams, 1523 Locust Street, Philadelphia, Pa.

Necrology.

Dr. Hiram Corson died in Plymouth Township, Penna., on March 4, 1896. He was born in the town in which he died on October 8, 1804. When 22 years of age, he began the study of medicine at the University of Pennsylvania, receiving his degree in March, 1828. Soon afterwards he settled in Plymouth Township, where for more than half a century he enjoyed an exceptionally large practice. He always led a busy life, and his contributions to medical science were both numerous and varied. He was one of the earliest advocates of the free use of ice and cold water in the treatment of acute infectious diseases, and he had the pleasure of seeing his views accepted by the whole medical profession. He was warm-hearted, generous, broad-minded, and wise in his judgments. During the past twelve years, although not actively engaged in practice, he continued to contribute to the medical journals, and kept himself fully informed on all matters pertaining to the profession. His last appearance in public as a representative of his profession was on June 5, 1895, at a meeting of the Montgomery County Medical Society. On that occasion, referring to his long career as a practitioner, he said one of his present patients was a child whose mother, grandmother, and great-grandmother he had attended professionally, being present at the birth of three of the representatives of four generations.

He became an honorary member of the Philadelphia Medical Society in 1828. He was founder of the Montgomery County Medical Society in 1847, and president of it in 1849. He was elected member of the Pennsylvania Medical Society in 1849, and president of the State Medical Society in 1852; member of the American Medical Association, 1862; associate member of the Philadelphia Obstetric Society, 1874; associate fellow of the Philadelphia College of Physicians, 1876; honorary member of the Harrisburg Pathological Society, 1881; life member of the Alumni Association of the University of Pennsylvania, 1879; elected member of the Historical Society of Pennsylvania, 1884; member of the Board of Trustees of the Lunatic Hospital at Harrisburg, from 1877 to 1884; appointed official visitor by the Board of Public Charities to Montgomery County jail and almshouse, and later to the Hospital for the Insane at Nor-

ristown; elected honorary member of the American Association of Obstetricians and Gynecologists, 1892.

Dr. Owen Jones Wister died on February 24, 1896, in Branchtown, Philadelphia County, Penna. He was born on October 5, 1825, and received his medical degree from the University of Pennsylvania in 1847. In the following year he entered the United States Navy, where he remained four years. After retiring from the navy he located in Branchtown, where he built up an extensive practice. Dr. Wister was an active member of the Philadelphia College of Physicians, of the Academy of Natural Sciences, American Philosophical Society, and Historical Society of Pennsylvania. From 1880 until his death he was consulting physician to the Jewish Hospital.

Dr. William H. Stewart died in Asheville, N. C., on March 3, 1896. Dr. Stewart was born thirty-five years ago, graduated from the Medical Department of the University of Pennsylvania in 1882, served a term as resident physician in the Philadelphia Hospital, and spent a year as surgeon on the American line steamer "Ohio." He subsequently engaged in practice in the northern part of Philadelphia, where he was widely known and held in high esteem.

Dr. Winthrop Sargent died in Roxbury, Mass., on March 16, 1896. Dr. Sargent was born in Gloucester, Mass., on July 8, 1822, and received his preliminary education at Dartmouth College. He subsequently entered the Medical Department of the University of Pennsylvania, from which he graduated in 1847. He first practised his profession in Montgomery County, Penna., but he removed to Philadelphia in 1855, where he remained until ten years ago, when he located in Boston, Mass. For several years he was secretary, and afterwards president, of the Montgomery County Medical Society, of which he was one of the co-originators. In 1862 he was appointed surgeon in charge of the Government Hospital in Kingsessing. At the time of his death he was a member of the Philadelphia County Medical Society, and of the State Medical Society of Pennsylvania, and a fellow of the College of Physicians of Philadelphia.

EDITORIAL.

THE LEIDY FELLOWSHIP IN ANATOMY.

The death of a great man, followed naturally by numerous newspaper notices and reports, seems to throw for the time being his reputation and work into the shadow. The great public seems to tire for the time being of the personality which had been its idol, perhaps, for many years, and the vigor and the value of the services rendered humanity seem to fall to the ground unheeded and unappreciated. Sooner or later, however, a reaction sets in and slowly but inevitably the services, the reputation, and the true value of the great man gradually assume their proper proportions. If his reputation has been a false one, or bolstered up on inflated pillars of advertisement judiciously applied, time will mercilessly and unfailingly assign him to oblivion. But if his reputation has a firm, true basis, we will hear more and more of his fame and deeds as the years roll by. This has been particularly true of Agnew and Leidy, the two greatest recent heroes of the medical world. They are now assuming their proper places in the temple of fame.

The Leidy Fellowship in Anatomy was started as an expression of this renewed interest in the life and works of the great pioneer scientist, who blazed many of the paths which are now part of the world's highways. It was the hope of the committee formed to carry out this object to interest the former pupils of Leidy in this work. It has been fully successful; a large proportion of his former students, scattered everywhere, far distant from the scene of their studies and isolated from University sympathy, have given freely to this project, esteeming it a privilege to be permitted to contribute to such a cause. No attempt as yet has been formally made to reach the local pupils of Leidy, but, no doubt, they will in their turn do their share. Sufficient funds have been given or promised to render the establishment of the Fellowship more than probable. But there still remains a large gap between the present position of the committee and their final goal, and the readers of the Magazine are respectfully requested to ask their own consciences whether they have yet done what they could for the memory of the modest, retiring Leidy, whose fame adds to their own as their teacher and friend.

THE PASSING OF THE APOTHECARIES' WEIGHTS AND FLUID MEASURES.

THE most casual reader of current medical literature must have been impressed with the constantly-increasing frequency with which terms of the metric system are displacing those heretofore used.

Renewed interest has been awakened in this subject by the recent recommendation of the House Committee on Coinage, Weights, and Measures that the metric system be adopted by the government departments July 1, 1898, and by the nation at large coincident with the dawn of the twentieth century, January 1, 1901. Numerous arguments have been advanced by those favoring this change. They are familiar to all and need not be repeated here. On the other hand, the objections that are urged against the adoption of the metric system are equally well known, and may also be passed over. The fact is that while the question is being discussed, the metric system is gradually being used more and more, and the dates fixed by the Congressional committee above referred to are quite remote enough.

In the 1890 revision of the Pharmacopœia of the United States the metric system is employed to the exclusion of all others.

For the past three years our tinctures, fluid extracts, wines, spirits, etc. have been made according to metric measures. The old relation of so many grains of drug to a fluid ounce of tincture or other preparation does not hold now. The relation that exists at present is so many grammes or a certain fraction of a gramme to a cubic centimetre of finished preparation.

It is a very simple matter to change quantities from one of these systems to the other. For prescription writing one need only remember that the gramme equals fifteen and one-half grains, and the cubic centimetre fifteen minims, or one-fourth of a fluidrachm; or, in other words, there are four cubic centimetres (accurately three and seven-tenths) in one fluidrachm or teaspoonful. These slight variations need not be taken into consideration, as there is quite that amount of discrepancy in the teaspoon that is so constantly employed to measure the dose of medicine, and even the ordinary graduate used for this purpose would scarcely be more accurate.

Germany made compulsory the change from its former cumbersome system to the metric measures. The transition was brought about in two years. In Austria it was accomplished in three years, and without friction or trouble. The new metric standards are preserved in the International Metric Bureau in Paris.

The apothecaries' weight and fluid measures used in the United States are the same as those used in England prior to 1825.

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.,

ASSISTED BY

M. HOWARD FUSSELL, M.D., AND A. O. J. KELLY, M.D.

A Case of Infantile Progressive Paralysis.

Bresler (*Neurologisches Centralblatt*, No. 23, 1895) reports the case of a girl, aged 13½ years, whose mother, several maternal relatives, and grandmother were insane, but whose brother and sister were in good health. When 6 years of age, the patient went to school, but made only slow progress, and was finally expelled as unruly and unteachable. Her illness dated from fourteen months prior to her first visit; at that time she became affected with chorea. When seen for the first time she was restless, dull, irritable, cried, was completely demented, and helpless. She could formerly read and sew, but for past two or three years these had been impossible; she refused food and was unclean in her habits. Articulation was unaffected; special senses apparently normal. There were no paralyses, the gait tripping. There was loss of memory, but no hallucinations; the patient took no interest in her surroundings. During the first three months of observation the patient became duller, and nutrition failed. At the end of four months she became confined to bed because of excessive weakness; there occurred slight facial paralysis and bedsores. The patient became more restless and less conscious, and had some rise of temperature. There ensued three convulsions with conjugate deviation of the eyes, and six days later, under symptoms of general paralysis of the brain, death occurred, the patient being 14 years and 2 days old. She had never menstruated. At the autopsy there were found thickening of the dura mater, turbidity, and edema of the arachnoid. In the subarachnoid space there was a quantity of serous fluid. The pia was in places adherent; the convolutions atrophic. The brain substance cut like liver and the cut surface showed many dilated veins. The upper layer of the cerebrum could be stripped off like the skin of a roasted apple. The absence of bulbar symptoms, difficulty in articulation, and of ideas of grandeur, is noteworthy. The reported cases occur mostly in girls, and the initial symptoms are frequently those of chorea.

Etiology of Heart-Disease in Early Childhood.

Pott (*Fortschritte der Medicin*, Nos. 22 and 23, 1895), discussing the etiology of heart-disease in early childhood, bases his conclusions upon ninety-five cases—thirty-six boys, fifty-nine girls—observed among 30,000 children under 15 years of age. Twenty-seven were under 2 years of age. An acquired endocarditis in early

childhood is never idiopathic or primary, but is always secondary to some acute infectious disease,—pneumonia, scarlet fever, articular rheumatism. Depending upon the indisposition of very young children to acquire scarlet fever, its importance as an etiological factor is much diminished. The youngest child observed was one aged 3 years, in whom, towards the close of the second week of an attack of scarlet fever, endocarditis developed, leaving a permanent mitral insufficiency. A frequent cause is articular rheumatism, usually asserted to be infrequent prior to the fourth year. This is due to difficulty of diagnosis. Of seventy-eight cases of joint rheumatism, twenty-one were under 2 years of age. These do not include scarlatina or gonorrheal rheumatism, of which latter he has observed two instances among 100 cases of gonorrhea, the patients being aged 3 weeks and 3 months. Of importance is what is termed masked rheumatism, an infectious fever accompanied by catarrhal inflammation of the naso-pharynx, enlargement of the cervical glands and spleen, herpes labialis, and rheumatoid pains in the extremities. This has been designated ephemera, gland fever, and herpetic fever. It subsides under the salicylates. These also are not included in his statistics, owing to the difficulty of proving their rheumatic nature, but they are often associated with endo- and pericarditis. He includes, of course, all monarticular and polyarticular cases. Excluding malformations, congenital valvular disease may be due to an attack of rheumatism affecting the mother, while the child was still *in utero*. Congenital syphilis is also responsible for some cases. The post-mortem findings of miliary tuberculosis in cases of right-sided lesions of the heart suggests that they may have been due to an intra-uterine tuberculosis. An intra-uterine endocarditis never produces any lesion of the mitral valve. The article also contains notes of autopsies and remarks on malformations.

Simultaneous Occurrence of Graves's Disease and Tetany in the same Individual.

Steinlechner (*Wiener klinische Wochenschrift*, No. 1, 1896) reports the case of a female, aged 20 years (21 years at death), who exhibited the three cardinal symptoms of Graves's disease,—enlarged thyroid, exophthalmos, and tachycardia,—and in addition the characteristic psychic change, amenorrhea, compression of the trachea, etc. Microscopic examination of the enlarged thyroid revealed it to be of parenchymatous nature, rather than that ordinarily found associated with Basedow's disease. Before the development and during the course of this disease, there occurred typical attacks of tetany affecting particularly the upper extremities. As a relationship between enlargement of the thyroid and tetany has been proven to exist, such was supposed in this case. The theory is that changes in the thyroid produce disturbances of metabolism which give rise to the tetany. In the present instance there was found in the cerebral cortex an encapsulated cysticercus which *intra vitam* had produced no symptoms. We can therefore suppose that the cerebral cortex is in such a manner changed by the presence of the foreign body as to violently react to irritations from the periphery. These irritations are toxines which, because of the deficient function of the thyroid gland, become stored up in the body. Ordinarily they produce no effect, but in suitable cases—such, for instance, as those in which the functional activity of the cerebral cortex is weakened by the presence of a foreign body, or otherwise—they are causative of tetanic convulsions. This thought leads to the supposition of an intimate relationship between Graves's disease and tetany rather than to the idea of an accidental combination of the two diseases in the same individual. Graves's disease and tetany are both produced by changes in the thyroid gland, and the enlargement of the thyroid gland

was, in the present case, the first demonstrable symptom of any disease. All the later symptoms are therefore explained by reasoning that on the one hand, through auto-intoxication, the subsequent symptoms of Graves's disease were produced, and, on the other hand, that in a predisposed individual, the same injurious influences were causative of tetany. In four cases of tetany with autopsies, in two there were formed in the cerebral cortex encapsulated cysticercus, which during life had produced no symptoms.

Typhoid Fever with Unusual Sequelæ.

Simpson (*Edinburgh Medical Journal*, January, 1896) reports the case of a female, aged 45 years, who was perfectly healthy until she was 28 years of age, when she contracted typhoid fever. During convalescence she suddenly became unconscious without any scream or aura; face was pale and did not become livid; limbs were stiff and rigid; and the patient did not pass through any clonic stage before resolution. She would have as many as five such seizures daily. The tongue was sometimes bitten, and there was some involuntary micturition, but there was no frothing at the mouth, nor embarrassed respiration. The patient was dazed and stupid for a time after each fit. The true cataleptic condition gradually became more marked; the patient was never in an actual trance, though sometimes in a state similar to the "status epilepticus." There never was opisthotonos, and fits were always worse when attention was paid to her. For nine years she was confined to bed in this helpless state. At the end of this time she began to get up for a short time, but regularly once a week—Sunday, the day of the occurrence of the first fit—she was confined to her bed by a constant recurrence of the fits. At intervals there occurred severe attacks of vomiting, and inability to retain food for several days at a time. Subsequently, suddenly, while speaking she would pass into an unconscious state with muscular rigidity of the lower limbs and head. There was no scream nor clonic spasm at any time; respiration and heart's action quiet and calm, face pale, no involuntary urination or defecation. Condition lasted usually about fifteen minutes. Just before coming out of an attack she would move her head slowly from side to side, go through writhing movements, take a few rapid respirations, groan, and the seizure was over. These attacks occurred frequently the same day. Speech, while always peculiar, was much more so since illness. Voice had a peculiar cracked tone, the words were half stammered or stuttered out, but there was no absolute aphonia or aphasia. On the whole, the case seems to be an instance of several nervous sequelæ of typhoid fever, comprising not only the dysarthria, but also the incomplete cataleptic condition with a degree of dementia, combined with a strong, hysterical element. The condition improved somewhat after the reposition of a retroverted uterus.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

G. G. DAVIS, M.D., M.R.C.S., AND ELLWOOD R. KIRBY, M.D.

Osteoplastic Amputations of the Elbow and Wrist.

Samfirescou (*Revue de Chirurgie*, 1895, p. 839) describes his operations of amputations of the wrist and elbow, in which a piece of bone is left in the flap, after the methods of Gritti and Sabanajeff for the knee.

The operation on the elbow he terms the "osteoplastic brachio-olecranon amputation;" it is performed as follows: A posterior flap is cut running from one condyle to the other and extending two fingers' breadths down on the olecranon process. This incision is carried down to the bone, and the soft parts and periosteum detached as far as the base of the olecranon, where, with a saw, a transverse cut is made directly into, but not through, the bone. The arm is then turned over and an anterior flap cut exactly similar in length and shape to the posterior one. The lateral and anterior ligaments of the joint are divided and the olecranon reached. Here the attachment of the triceps tendon is removed for the distance of a third of an inch, and the olecranon sawn longitudinally until the transverse cut previously made is reached. Thus the forearm is removed, leaving a piece of the olecranon attached to the triceps tendon. The end of the humerus is next to be sawn off and the piece of the olecranon brought up and fixed to it by a bony suture. The flaps and soft parts are then approximated.

The operation on the wrist he calls the "osteoplastic metacarpo-radio-cubital amputation." It is done as follows: A single long external flap is cut from the dorsum of the thumb. This flap is composed of all the soft parts together with the metacarpal bone. A transverse incision then passes through the wrist-joint and removes the remaining portion of the hand. With a saw the metacarpal bone of the thumb is split longitudinally and one-half of it removed. The ends of the ulna and radius are then sawn off and the sawn surface of the metacarpal bone brought over and attached thereto by an osseous suture. The soft parts are then approximated by suture.

One of the author's colleagues having pointed out to him that his elbow operation resembled that of Symanowsky, he replies that it is not exactly the same, and that, to him, it is a flattering evidence of the value of his procedure.

A Contra-Indication to the Puncture of Ovarian Cysts.

Rendu (*Lyon Médical*, November, 1895, p. 350) gives the details of a case of unilocular cyst which illustrated the dangers incident to tapping ovarian growths. The patient was a woman, aged 34 years, with a probable unilocular cyst. He performed an exploratory celiotomy, and found the intestines all firmly matted to the growth to such an extent as to render its removal too hazardous, if not impossible. The abdominal wound was then closed and the cyst punctured *per vaginam*, with the result of a speedy and satisfactory cure.

It is pointed out that tapping, if attempted in this case, would almost certainly have proven fatal by reason of puncture of the coils of intestine fastened to the anterior wall of the cyst. He was led to open the abdomen by the fact of the patient having had such a great amount of previous pain as to lead him to suspect the existence of the adhesions which were subsequently found.

Operations on the Gasserian Ganglion.

Keen (*American Journal of the Medical Sciences*, January, 1896, p. 59) reports six operations on the Gasserian ganglion for the relief of trigeminal neuralgia. They were done by the Hartley-Krause method, in which the skull is opened in the temporal region and the brain and dura mater lifted up until the region of the ganglion is reached. In two cases the surgical engine and Dr. Cryer's drill were used to enter the skull, and in four the chisel. He prefers that of Pyle. On turning down the bony flap, there will be bleeding from the middle meningeal artery; to

control this a fine Hagedorn needle threaded with silk is to be used. In two cases in which the middle meningeal artery was ruptured in the foramen spinosum, the bleeding was checked by plugging the opening with the curved end of an Allis blunt dissector. For this was substituted the finger and then plugging with gauze. This was removed on the third day. Lifting of the temporo-sphenoidal lobe is best done with the finger, the brain and membranes being held up with a broad spatula. The hemorrhage following the detachment of the dura mater is to be controlled by packing with gauze. If the cavernous sinus is injured, the bleeding is to be controlled by packing. If bleeding is very troublesome, the subsequent procedures are deferred for three days, when the packing is to be removed and the operation completed. The converging folds of the dura mater serve as guides to the foramina. The isolation of the nerves and ganglion is done with Allis's instrument. The ganglion is then seized, the second and third divisions of the nerve cut, and with forceps the ganglion twisted off. In the author's first four cases no trouble was experienced with the cornea, but in the last two corneal ulcers formed. To avoid this, closure of the lids after the operation is suggested.

The mortality of the Hartley-Krause method as compared with that of Rose is as 9.8 to 18 per cent.

Thus far the results are more satisfactory than any of the peripheral operations.

The pain recurred somewhat in two of the cases, but it was not of such a character as to lead one to suppose that it would result in a relapse.

Cancer of the Stomach.

Quénu (*Revue de Chirurgie*, October, 1895, p. 850) reports two cases of cancer of the stomach. The first was a woman, aged 33 years. An exploratory operation was first done, and the condition of the parts having been ascertained and explained to the patient. Later the radical operation was performed. An anastomosis between the stomach and duodenum was established by means of Murphy's button. The abdominal incision consumed three minutes and the anastomosis seventeen. A long forceps guarded with rubber was then applied to the stomach and a second to the duodenum. The included growth was then removed by the scissors. The two ends were each closed separately with the Czerny-Lembert suture. The total time of the operation was an hour and fifty-five minutes. Recovery from the operation ensued, but death from recurrence occurred five months later.

The author advises in these cases to do the operation in two stages and perform a gastro-enterostomy first, and then ten to fifteen days later do the removal of the growth. The use of Murphy's button is advised, notwithstanding the fact that it was found post mortem in the stomach.

The second case was a man, aged 50 years. In it a gastro-enterostomy was performed with a large-sized Murphy's button, but complete extirpation of the growth was impossible. Recovery was perfect and great improvement in the patient's condition occurred later.

Wiring in Fracture of the Olecranon.

Adenot (*Lyon Médical*, lxxix, 1895, p. 489) reports the case of a man who sustained a compound fracture of the olecranon process. The separation was of the width of two fingers. The wound having been cleansed, the fragment was

brought down and sutured in place with two silver wires. The arm was placed in plaster in a slightly extended position, One of the metallic sutures was removed on the twentieth day, but it was impossible to remove the other. This latter presented itself beneath the skin one and a half months later, and was removed without trouble. He states that he did not encourage the patient to use his arm too soon, because he preferred a good result to a premature mediocre one.

On the patient's return to the hospital, three months later, the movements of the articulation were complete, and he had resumed his occupation as a mason. Attention is called to Tripier's observation that the fragment in cases of fracture of the olecranon is not infrequently tilted by the action of the triceps muscle (*mouvement de bascule*).

Treatment of Floating Kidney.

Albarran (*Annales des Maladies des Organes Génito-Urinaires*, Vol. xiii, 1895, p. 577) advises the following in the treatment of movable kidney:

(1) Operate on all movable kidneys which are diseased, varying the operation according to the condition present.

(2) When mechanical troubles or pain are present, try a supporting bandage. If the symptoms disappear, then give to the patient the opportunity of choosing between operation and mechanical support. If a bandage does not give a good result, operate.

(3) When hysterical or neurasthenic symptoms are present, then try the bandage, and do not operate unless it fails to give satisfactory results.

(4) In cases of general abdominal relaxation employ the abdominal supporter, and do not operate unless the movable kidney itself is the cause of distressing symptoms. After the operation it is still necessary to use the bandage.

(5) When a movable kidney does not give rise to serious symptoms, advise the use of a bandage.

Fat Embolism.

Groubé (*Revue de Chirurgie*, 1895, p. 577) presents the following observations on fat embolism:

(1) Although fatal cases of emboli involving the brain are rare, one should not lose sight of their possibility in extensive lesions of the bones and soft parts. He had one such case.

(2) Examine the urine for fat in all cases of extensive injuries. This should be done daily for at least three weeks.

(3) If one ascertains the amount of fat in the urine it may serve as an indication of the amount circulating in the organism. It is probable that they are in inverse ratio: the more that comes out the less that remains. The diminution of the amount passed in the urine and the simultaneous increase of respiratory troubles indicate the approach of danger.

(4) Particular attention should be given to the difficulty of respiration and lowering of temperature. Perhaps sneezing may also be a symptom.

(5) The literature of the subject and the mechanism of origin of the emboli speak in favor of complete immobility in the treatment of fractures. This should be done even in bad compound fractures.

(6) Massage in fractures is to be deprecated, and even in injuries to the soft parts it should only be used when the effusion is slow in disappearing.

(7) Hematomas occurring after contusions and containing blood and fatty liquid are advised to be incised and their contents evacuated.

(8) When one hesitates between amputating and attempting to save an injured member one should not omit to consider the danger of fatty embolism.

(9) From the moment emboli form, efforts should be made to aid the kidneys to excrete the fat and sustain the heart. Cardiac and diuretic drugs are recommended for this, particularly digitalis.

Cocainization of the Nose before and during Surgical Anesthesia.

Gerster (*Annals of Surgery*, January, 1896) gives his experience in 100 cases with Rosenberg's method of instilling cocaine in the nose before and during the administration of anesthetics. Its objects are to reduce the unpleasantness attending the administration of the anesthetic and lessen the subsequent nausea and vomiting. Rosenberg directed that the patient should blow his nose, then have it sprayed with two centigrammes of a 10-per-cent. solution of cocaine in each nostril. After two minutes this spraying is again repeated and the anesthesia begun. Every half-hour the spraying is again repeated and a final one given before removing the patient. Drs. A. D. Mayer and C. Theobald made the 100 observations which the author reports. Chloroform was given fifty-two times; ether, twenty-four times; A.-C.-E. mixture, thirteen times; mixed anesthetics were given in the other eleven cases.

Of these 100 cases, the results in sixty-six were good; in fourteen, fair; and twenty bad. The last were those where marked variations from the normal pulse and respiration, considerable cyanoses, muscular tremor, or prolonged muscular rigidity were observed. In the twenty bad cases chloroform was given fifteen times; ether, three times; and A.-C.-E. mixture, twice. The ordinary time for induction of anesthesia was for chloroform, five to eight minutes; for ether, fifteen to twenty minutes; for A.-C.-E. mixture, twelve to fifteen minutes.

In all cases a 5-per-cent. solution of cocaine was employed, instead of the 10 recommended by Rosenberg.

In four cases the disturbances were very grave, two of them being accompanied by profuse hemorrhage followed by collapse, which once proved fatal. In the third the operation had to be postponed on account of heart-failure, and in the fourth spasm of the glottis compelled instant tracheotomy.

The author concludes that the method considerably diminishes the distress and oppression felt by the patients at the beginning of anesthesia. They entered insensibility more rapidly, quietly, and with less struggling, coughing, and nausea. In perhaps ten cases in from twenty to twenty-five minutes a marked acceleration of pulse-rate with facial pallor was observed, followed by profuse sweating; this was attributed to the cocaine employed. As to after-effects, there was less nausea, vomiting, and headache; but some patients who did not vomit immediately or during the first twenty-four hours, vomited a great deal on the second and third days. The method does not offer any marked advantage in alcoholics. It is stated, in conclusion, that a trial of the method is to be encouraged.

[In the discussion following the above paper, Dr. Willy Meyer advocated the method, and regarded cocaine and chloroform as being mutual antidotes. Drs. Bryant, Abbe, and Hotchkiss did not regard the method favorably.]

THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D., AND ARTHUR A. STEVENS, M.D.

The Hypodermic Use of Guaiacol in Acute Pulmonary Tuberculosis.

Coghill (*British Medical Journal*, March 7, 1896) has obtained encouraging results in acute pulmonary tuberculosis by the subcutaneous administration of guaiacol. In many of the cases in which the treatment was carried out, the injections were persevered in for some time before any impression was produced on the temperature. The fall of temperature was always comparatively gradual. The subsidence of the fever was invariably marked by increased appetite and weight, and diminished cough and expectoration. A moderate warm perspiration following the injection at a variable interval takes the place of the regular hectic night-sweats. In beginning the treatment, the minimum dose is given before the diurnal rise of temperature has passed above normal, and if the temperature is not reduced in a few days the dose is increased drop by drop to five or even seven minims, which rarely required to be exceeded. When the reactive sweating is excessive two small injections are given daily. The buttock is the most favorable region for the injection, which should be made deep and at a right angle to the surface. In every case, sooner or later, the guaiacol is tasted by the patient a few minutes after the injection. The author has also employed the carbonate of guaiacol, benzoyl guaiacol, and iodoform dissolved in guaiacol in the same manner, but concludes that these compounds have no special claims to therapeutic preference.

The Antitoxin Treatment of Diphtheria at the Boston City Hospital.

McCollom (*Boston Medical and Surgical Journal*, February 13, 1896), at a recent meeting of the Boston City Hospital Club, stated that there had been treated in the department of the hospital for contagious diseases, since its opening on August 31, 1895, 844 cases of diphtheria. Of these ninety-six died, a mortality of 11 per cent. All of the cases were treated with antitoxin. The effect of the antitoxin on the operative cases, according to the speaker, was very marked.

In the report of the Boston City Hospital for the year ending January 31, 1895, before antitoxin was generally used, there were eighty-six cases of intubation, with seventy-four deaths, giving a percentage of 86. In the South Department, from August 30, 1895, to February 1, 1896, there were seventy-nine intubations with thirty-six deaths, giving a percentage of 45, a diminution of nearly one-half. "The change in the appearance of the diphtheria wards, says McCollom, since the introduction of the use of antitoxin, has been very marked."

The Active Principle of Thyroid Extract.

Fränkel (*Wiener klinische Wochenschrift*, No. 48, 1895) has obtained from the thyroid gland a substance which he names thyreo-antitoxin, and which he believes to represent the active properties of the fresh gland. It is obtained from the filtrate remaining after precipitating, by acetic acid, the albumens from an aqueous solution of the dried sheeps' thyroid. It is hygroscopic, odorless, tasteless, soluble in water and alcohol, but insoluble in ether.

The Dietetic Treatment of Heart-Disease.

Glax (*Centralblatt für innere Medicin*, No. 52, 1895) calls attention to the importance of restricting the amount of liquids ingested by patients afflicted with chronic heart-disease, and speaks of the good results obtained from digitalis and other cardiac tonics when this is done. He concludes as follows:

Limiting the amount of fluid ingested is one of the most necessary measures in the treatment of chronic cardiac diseases, and often alone suffices to restore compensation.

In many cases, where they have previously proved of no effect, cardiac tonics show their specific action as soon as the liquid ingesta are regulated so as to correspond to the elimination.

Beta-Naphtol and Bismuth Subnitrate as Intestinal Antiseptics.

Surveyor and Harley (*British Medical Journal*, No. 1824, 1895) have undertaken some experiments with the view of determining the relative value of beta-naphtol and bismuth subnitrate as intestinal antiseptics. The effect of the drugs, taken together and separately, on the elimination of urea, and of alkaline and aromatic sulphates was first determined. The drugs were given in the form of powders, and by the mouth. During one week the normal ratio of sulphates was obtained, then the drug was administered in fifteen-grain doses at breakfast and at dinner for twelve days. The day and night urine were collected separately. The second series of experiments lasted thirty-seven days. The first day's urine was tested for the normal ratio. On the succeeding seven days, seven and one-half grains of bismuth subnitrate were taken twice daily, at breakfast and dinner. During the next week fifteen grains were taken thrice daily, at breakfast, dinner, and supper. During the next four days fifteen grains of beta-naphtol were given in the morning and evening, with bismuth subnitrate, which was continued in fifteen-grain doses thrice daily. These experiments resulted in an increase of aromatic sulphates during the administration of the beta-naphtol alone, or with bismuth subnitrate. The amount of total sulphates, however, did not vary much. On the other hand, the alkaline sulphates were always diminished under the use of beta-naphtol. It is not possible to say how far beta-naphtol serves to diminish the aromatic sulphates, because that is most probably masked by the drug itself, which is excreted as an aromatic sulphate at the expense of the alkaline sulphates. Bacteriological observations showed that both drugs have the power of preventing or hindering the growth of micro-organisms; that beta-naphtol is the stronger of the two in some cases. To ascertain how far these drugs would act as intestinal antiseptics, the determination of the approximate, number of colonies present in the contents of the different parts of the alimentary canal of dogs, after feeding them for several days on the same kind of food, was undertaken. Dogs to whom both drugs were administered showed considerable reduction of the colonies throughout the entire alimentary canal. Beta-naphtol alone caused a similar reduction. Bismuth subnitrate caused a reduction in the number of colonies in the upper, but scarcely reduced it in the lower part of the tract. A further series of experiments was carried on outside of the body with the two drugs, by adding them to test-tubes containing the diluted contents of the large intestine of dogs, and keeping the mixture in an incubator at body heat. These experiments show that bismuth subnitrate is more powerful as a germicide than beta-naphtol, when large doses are used. However, internally beta-naphtol acts better than bismuth subnitrate as an antiseptic, since the actual value of the latter is diminished on account of its constipating property.

Pepsin in Gastric Diseases.

Oppler (*Centralblatt für innere Medicin*, February 1, 1896) describes in a preliminary communication a method of estimating the activity of pepsin. An hour after the test-breakfast the contents of the stomach are expressed, and the organ washed out with small quantities of distilled water. The washings along with the stomach contents are then made up to one or two litres according to the quantity. Dilute hydrochloric acid is added until the total acidity stands at seventy-seven. The nitrogen in a 2.1-per cent. solution of albumen is estimated according to Kjeldal's method; twenty cubic centimetres of this solution is then added to fifty cubic centimetres of the stomach contents as above obtained, and the whole is digested at 37.5° C. for three hours. After the precipitation and coagulation of the undigested albumen, acid albumen, etc., the nitrogen of the digested portion is estimated, and the percentage of albumen thus calculated. The author thus obtained figures for normal individuals with which he could compare others from cases of gastric disease. In chronic gastritis, especially, the formation of pepsin was much diminished. In gastric carcinoma the same thing was noted, particularly where growth affected the body of the stomach. In early cases of pyloric carcinoma pepsin may still be found, although no hydrochloric acid is present, but it gradually diminishes. After resection of the pylorus it is unquestionably possible to bring the affection of the mucous membrane to a stand still, and even for some recovery to occur. In atony and dilatation of the stomach diminished pepsin secretion is found only when a mucous catarrh with lessened acid secretion is present. Increased pepsin formation occurs in ulcer of the stomach, acid gastritis, chronic gastrosuccorrhea, and occasionally in chlorosis, whereas nervous subacidity and most secondary diseases of the stomach show a diminution. In nervous dyspepsia the results are variable. Pepsin secretion as measured by the activity of pepsin appears to run parallel to the secretion of hydrochloric acid, but the correspondence is not complete. The author therefore thinks that the quantitative estimation of pepsin need hardly come into constant use.

Some New Vaso-Dilators.

In the recent Bradshaw lecture (*Medical Chronicle*, January, 1895), Dr. Bradbury has communicated the results of some valuable work on the nitrates derived from the higher valent alcohols, which serves to advance pharmacological knowledge and gives promise of adding to therapeutic resources. The discovery that nitrite of amyl ($C_5H_{11}NO_2$) dilates the vessels led to experiments which showed that the nitrites of the radicals of the monovalent alcohols generally have a similar influence on the vascular system; and when it was pointed out that nitro-glycerin, $C_3H_5(ONO_2)_3$, which so powerfully dilates vessels, is a nitrate of the radical of the trivalent alcohol glycerol, investigations were made which proved that the nitrates of the radicals of the monovalent alcohols act on the vessels like nitrites.

Dr. Bradbury's lecture advances our knowledge a step further, for he demonstrates that the nitrates of the radicals of the divalent alcohol glycol, $C_2H_4(OH)_2$, of the tetravalent alcohol erythrol, $C_4H_6(OH)_4$, and of the hexavalent alcohol mannitol, $C_6H_8(OH)_6$, have the same vessel-dilating effects as the nitrates of the monovalent and trivalent alcohols. He points out that the action of some of the nitrates, which he brings for the first time under notice, is remarkably prolonged. Of the four which were specially investigated, methyl-nitrate seems to have lowered the tension of the pulse the longest time. In a patient to whom ten minims (0.65 cubic centimetre) of this drug were given, the tension remained low more than six hours.

The dose in this case was a large one, and in experiments on animals he found the influence of methyl-nitrate in lowering blood-pressure less marked than that of the other nitrates. Glycol-dinitrate, $C_2H_4(ONO_2)_2$, is, like methyl-nitrate, a liquid. It was found to act like nitro-glycerin when given in similar doses. Erythrol-tetranitrate, $C_4H_6(ONO_2)_4$, is a solid, melting at 60° C. (140° F.). Even in one-grain (0.065 cubic centimetre) doses it was found to lower the pulse tension for more than five hours, and this result was in keeping with experiments on animals, in which it lowered the blood-pressure more slowly, but for a much longer time, than nitro-glycerin. Mannitol-hexanitrate, $C_6H_8(ONO_2)_6$, is likewise a solid, melting at 113° C. (240.6° F.). Its action is quite similar to that of erythrol-tetranitrate.

It seems probable that the nitrates of erythrol and mannitol may prove of considerable practical therapeutic value in many of those cases in which we now give nitro-glycerin,—as, for example, cardiac pain, chronic Bright's disease, dyspnea and headache,—for they act for a longer time and they are quite as easily administered. They are but slightly soluble in water, but readily dissolve in alcohol and ether, and may be given either in the form of pills or tablets or in alcoholic solution.

OBSTETRICS.

UNDER THE CHARGE OF

BARTON COOKE HIRST, M.D.,

ASSISTED BY

RICHARD C. NORRIS, M.D., AND FRANK W. TALLEY, M.D.

Glycerin in Induction of Labor.

Hayes (*American Journal of Obstetrics*, December, 1895) concludes that glycerin injections are frequently inefficient, especially so in doses under fifty cubic centimetres. They are liable to be followed by ill effects, such as shock, air-embolism, thrombosis, metritis, and sepsis. They sometimes produce glycerin-poisoning, which from destruction of blood-corpuscles leads to hemoglobinuria and nephritis. The method takes no account of the life of the child, and hence results in great fetal mortality. Its use should be abandoned or the dosage reduced, especially in subjects with affected kidneys.

The Serum Treatment of Puerperal Fever.

Gaulard (*Presse Médicale*, November 30, 1895) reports two cases of puerperal fever treated by serum. A rickety woman with a contracted pelvis had a protracted labor. The case was one of face presentation. The perineum was torn to the anus, but sutured at once. One week after delivery the temperature rose to 105° F., and remained at that height for three or four days. Gaulard saw her four days later, when the pulse was 140 and irregular, and diarrhea was present. The perineal wound was discharging pus, and on the vagina there were some sloughs. The uterus was curetted, nothing, however, of importance coming away. Subsequently the uterus was packed with iodoform gauze and the perineum resutured. The next day the temperature fell to 102.7° F., but on the second day it rose again, and her

general condition became serious. At this time ten cubic centimetres of Marmorek's antistreptococcic serum were injected into the abdominal wall. The temperature fell slightly on the following day, and a second injection of two cubic centimetres was given. From this time the temperature fell steadily, and the patient made a speedy recovery.

The second case was also a rickety woman. It was her fourth pregnancy. The first labor was natural; in the two others delivery was effected by forceps. The antero-posterior diameter of pelvis was three and a quarter inches. As an unsuccessful attempt had been made outside of the hospital to apply the forceps, a basiotripsy was performed, delivery effected, and a douche of 1 in 4000 bichloride of mercury given. The temperature rose rapidly, and two days after delivery it had risen to 104° F. The uterus was swabbed out with creosoted glycerin, some putrid fragments coming away, and plugged with iodoform gauze. On the fourth day ten cubic centimentres of antistreptococcic serum were injected, and repeated on the fifth and sixth days. After the third injection the temperature fell to 102.9° F. Another injection was now given, and the temperature fell to 101.5° F., reaching the normal on the eleventh day after delivery. While the temperature was falling, she was seized with bilious vomiting and meteorism, the pulse remaining as before, about 120. The vomiting became uncontrollable; she became comatose, and died on the thirteenth day. Gaulard believes that the serum was the cause of the vomiting. He fears that too much serum was injected, for at the autopsy there was no sign of suppuration or of peritonitis. The question of maximum dose of the serum has yet to be determined. The serum does not do away with the necessity of using the curette, but if the germs have already entered the blood, it may be employed against them and their toxins.

Placenta Previa.

Demelin (*Archives de Tocologie et de Gynécologie*, November, 1895) divides hemorrhage from faulty attachment of the placenta into three varieties. In the first labor has not begun. Here, if the flooding has been slight and has ceased, a skilled nurse should be constantly at hand ready with the tampon. When no assistance of this kind is available, the uterus should at once be emptied if the patient be strong with a good pulse. If she be weak from the hemorrhage, and therefore unable to bear so active a measure, the tampon should be introduced and maintained till the patient is stronger. In about six or eight hours, as a rule, forcible delivery will be safe to perform. In the second class of cases labor has set in, but the cervix is but incompletely dilated. Then in lateral or marginal insertion of the placenta the membranes should simply be well opened if the vertex present, and be well engaged. This manœuvre is dangerous if the pelvis be contracted. In breech presentation, well engaged, one foot must be drawn down through the rent in the membranes. In any other presentation, or when the vertex or breech is prevented from coming well down, the dilating bag should be employed after rupture of the membranes, as the presenting part cannot in such a case press strongly enough on the bleeding surface. The tampon may also be needed. In complete placenta previa, when the cervix is not fully dilated, the placenta should be perforated and the cervix dilated with the bags, the fetus being rapidly delivered if the patient be still strong. When she is weak, the pulse failing, the tampon must be applied till she has regained strength. If suddenly the child and the tampon are delivered together, so much the better. There remains the third class of cases. Here labor has set in, and the cervix is completely dilated. To turn and deliver at once, or to deliver with the forceps if the head be well engaged, is the right course unless the

patient be very weak from hemorrhage. In such a case, as before dilatation or labor, the tampon should be used. The head must be lowered, the extremities bandaged, warmth applied, etc. Rapid delivery must be effected, under ether, directly the patient has regained sufficient strength.

Lysol in Obstetrics.

C. M. Groth (*Svenska läk förhand.*, p. 20, 1895) gives the statistics of the Southern Lying-in Hospital of Stockholm, where, since the last death from puerperal fever, 4000 women have been delivered, the conditions leaving nothing to be desired. For the past few years the strongest solution of lysol, the antiseptic used, has been 1 per cent. externally and 0.5 per cent. for injections. The students in midwifery pay great attention to the study of external manipulation in order to restrict as much as possible internal manœuvres. Forceps were applied on account of insufficient labor-pains before the introduction of antiseptics, twenty-four times in 1000 cases; after the introduction of antiseptics, eighteen times per 1000; during the first year in which lysol was used, five times; during the past two years, twelve times per 1000.

Puerperal Involution.

C. K. Broers (*Universal Medical Journal*, October, 1895), in his inaugural thesis at the University of Leyden, considered the subject of puerperal involution of the uterine muscles, basing his conclusions on careful study of the rabbit at various parts of the postpartum period. He expressed the opinion that at the beginning of the puerperium the diminution in size of the uterine muscle is to be attributed to a glycogenic effusion of the hypertrophied muscular fibres, with a resorption of the edematous intermuscular fibrous tissue. Probably the glycogen, having undergone a chemical modification, is transported by the lymphatics. This effusion of glycogen, which begins in the first hours after delivery, is the sole factor in the diminution of the musculature,—a diminution which follows a progressive course until the end of the first day, when a new factor is added. Small fat-globules collect in the muscular cells, and little by little increase in size and become confluent. They leave the cells and are temporarily deposited in the intermuscular fibres, to be finally expelled on the fifth day. Their expulsion causes a considerable decrease in the size of the muscles, which by the end of a week and a half have reached the average normal dimensions. The process in no way implies a destruction of the muscular fibre, the fat which is formed being transported by the lymphatics and vessels so slowly that at the end of nearly five weeks it has not entirely disappeared. The same process also goes on in the coats of the arteries, the lumen of which sometimes undergoes considerable contraction,—so much so that an artery may sometimes be entirely closed from proliferation of its internal coat.

GYNECOLOGY.

UNDER THE CHARGE OF

CHARLES BINGHAM PENROSE, M.D.,

ASSISTED BY

H. D. BEYEA, M.D.

The Bacteriology of the Vaginal Sections in the New-Born.

Vahle (*Zeitschrift für Geburtshülfe und Gynäkologie*, Bd. xxxii, Heft 3) has made a careful bacteriological study of the vaginal secretions in seventy-five new-born children with the following results: During the first twenty-four hours after birth the secretions were found sterile in every case. During the next forty-eight hours the results varied very much; but after three days micro-organisms were found in every instance. The number of micro-organisms were always small and usually of one sort. Staphylococcus pyogenes albus was found twice, aureus three times, and streptococci in 14.6 per cent. of the cases.

Chinosol as an Antiseptic.

Kossmann, Berlin (*Centralblatt für Gynäkologie*, No. 52, 1895), writes that for a month in hospital practice he has employed chinosol instead of bichloride of mercury and carbolic acid as an antiseptic, with the best possible results. During this month there was not a single case of wound infection. Chinosol is a neutral combination of oxychinolins, which, when employed, separate and act as a strong antiseptic. A series of experiments, performed on animals at the Munich Hygienic Institute, determined the dose to be the same as the bichloride of mercury, and that a solution of 1 : 4000 prevented the growth of the staphylococcus pyogenes aureus. It is employed either as a powder or in solution and has the great advantage that it does not irritate the skin even in the strength of 1 : 500. It has a slight but not disagreeable odor, and discolors water and the hands light-yellow. The yellow discoloration of the skin is easily removed with soap and water. It is so little poisonous that one can drink the solution without harm. The writer strongly recommends chinosol, and believes it will be of particular use in obstetrical practice.

A New Method of Treating Uterine Hemorrhage.

Labadie-Lagrave (*Centralblatt für Gynäkologie*, No. 52, 1895) advise the application of antipyrin as a method of controlling hemorrhage from the uterus. It acts by contracting the tissues and coagulating the blood. In the form of a powder it is difficult to apply, and as a solution too small a quantity can be dissolved. It becomes a fluid at 110° C., but at this degree of heat it cannot be applied. The writer, therefore, advises a mixture of salol and antipyrin, which becomes a fluid at 43° C. One-third of a reagent glass is filled with a mixture of equal parts of salol and antipyrin and heated over the flame of an alcohol lamp. After two or three minutes the mixture is converted into a brownish fluid which soon solidifies. If it is again heated it becomes dark-brown, and then remains a fluid for a considerable length of time. The solution thus prepared is applied to the uterine cavity by means of an applicator, the manipulation being practised two or three times, and then a creosote-glycerin tampon is introduced into the vagina. The treatment is not asso-

ciated with any pain, and the hemorrhage ceases at once. The writer tampons the uterine cavity with gauze saturated with this solution after every curettement. If the mixture is heated for a quarter of an hour it does not solidify for a long time. If two parts of salol and one of antipyrin are employed it remains fluid at the ordinary temperature. A mixture of two parts antipyrin and one of salol solidifies after three days. If the mixture gets too hot it becomes blood-red in color, but is otherwise unchanged. In conclusion, fourteen cases were reported where this solution was employed with the best results.

Three Sisters with Bilateral Ovarian Cysts.

Löhlein (*Monatsschrift für Geburtshülfe und Gynäkologie*, Band III, Heft 2) reports an instance where bilateral ovarian cysts were removed from three sisters. He states that very little can be found in the literature regarding the hereditary relationship of ovarian cysts. Olshausen (1877 and 1886) has reported three instances where he has removed a unilateral proliferating ovarian cyst from two sisters. These six cases, however, do not conform to the conjecture of Köberle, that where there is a hereditary disposition the disease would always be bilateral. The histories of the writer's cases are as follows: On January 3, 1894, he removed from S. K. bilateral ovarian cysts, each the size of a fist. She was single, and 45 years of age. It was found that this patient's sister, two years older, had had removed by Köberle, on March 7, 1880, an ovarian cyst from the right side. She again appeared at the hospital, and on October 17, 1895, a large multilocular ovarian cyst, which had grown very rapidly, was removed from the left side. The third sister, Miss A. K., was operated upon by Köberle in 1872, bilateral cysts being removed. The further history of the family showed that the mother of these patients died in 1868 with a large abdominal tumor, which had grown very rapidly and was at the time thought to be carcinomatous. Löhlein says that it is interesting that in two of the sisters both of the cysts developed at the same time, while in the other there was a period of fifteen and a half years between the appearance of the cyst of the right and left side; also the marked difference in the cyst of each side in this same case, the left cyst developing very rapidly and being multilocular in type. He believes it is because no one has attempted to collect statistics regarding the relation of heredity to ovarian cysts that so very little has been reported.

Pseudo-myxoma Peritonei.

Rueder (*Centralblatt für Gynäkologie*, No. 6, 1896), at the meeting of October 9, 1894, of the Hamburg Obstetrical Society, reports a case of the very rare and interesting condition of pseudo-myxoma peritonei. The patient was 27 years of age. She had complained of pain over the abdomen for many months, which during the past three months had become much more severe, and for a short time had been associated with dyspnea. Although paracentesis was practised and the patient carefully examined under anesthesia, no satisfactory knowledge as to the cause of the symptoms could be gained. On opening the abdominal cavity the entire peritoneal cavity was found filled with gelatinous material and tenacious masses, and the pelvis contained a number of small cystic tumor masses containing the same gelatinous material. The peritoneum was very much inflamed. As hemorrhage was very easily excited, it was impossible to remove the cysts, and therefore the gelatinous material was removed and the abdomen closed. For a short time the patient's health improved, then she became cachectic, and soon afterwards died. The writer has observed two other cases of pseudo-myxoma peritonei. In one case

forty pounds of gelatinous material were removed. He has been able to find but three cases reported in the literature. The symptoms of which the patient complains were identical in every case,—deep-seated abdominal pain, loss of appetite, and dyspepsia; the abdominal pain gradually increasing in severity, and is finally associated with marked dyspnea. There are never signs of rupture of the multilocular cysts as shown by the gradual increase of symptoms. The symptoms result from the increasing amount of gelatinous material. He believes that operation is always indicated in this disease, although no case has as yet been reported where the patient got well, even where the tumor had been completely removed. In the discussion of this report Lomer said he had seen one of these cases operated upon in Schröder's clinic, the patient dying afterwards with ascites. Graspow referred to a case operated upon by Waitz two years before. The condition found was identical with the case reported. Fränkel, from a microscopical examination, had pronounced the disease malignant. The patient still lives and is in good health. Schütz had seen two cases, both of which died.

PATHOLOGY.

UNDER THE CHARGE OF

JOHN GUITÉRAS, M.D.,

ASSISTED BY

JOSEPH McFARLAND, M.D.

Researches upon the Pathogenesis of Peritonitis of Intestinal Origin.

Klecki (*Annales de l'Institut Pasteur*, 1895, No. 9) found that the colon bacilli secured from the ileum of a dog were highly virulent, while those from the jejunum and colon were much less so, and from this concludes that in different parts of the intestine the virulence of the bacillus varies.

Klecki regards the pathogeny of the colon bacillus as dependent upon a symbiotic action with other intestinal bacteria. The escape of the colon bacillus from the intestine in combination with these other pathogenic (guinea-pigs) and non-pathogenic bacteria can cause peritonitis.

Upon the Specific Peculiarities of the Protective Substances found in the Blood of Animals immunized against the Bacillus Typhi and the Bacillus Coli Communis.

Löffler and Abel (*Centralblatt für Bakteriologie und Parasitenkunde*, Band xix, Nos. 2 and 3, January 23, 1896) experimented with four virulent typhoid and two virulent colon bacilli. The exact minimal fatal dose of cultures of the various bacilli was carefully worked out by inoculation into guinea-pigs. The animals selected for immunization were dogs. Each animal received inoculations of live cultures in increasing doses, until at the end of about three months it was found that protective substances were present in the blood.

The results of the work are summarized as follows:

(1) The immunization of dogs to increasing doses of virulent cultures of bacillus typhi and bacillus coli communis produce in the blood of these animals specific protective substances operative against the particular bacillus by which they have been produced.

(2) The normal serum of the dog, without any preliminary treatment, has a protective power, not only against the minimal fatal dose of the bacilli, but also against several times this dose. The size of the dose of toxic bacilli always bearing a definite relation to the quantity of previously injected serum.

(3) The specificity of the serum of immunized animals is only observable when the animals are injected with distinctly larger doses of the bacteria than can be combated by the normal serum.

(4) The specific nature of the serum is obvious from the results of injections of a mixture of the toxic bacteria and the protective serum.

(5) The typhoid serum protects against the colon bacillus, and the colon serum against the typhoid bacillus more powerfully than normal serum, thus pointing to a relation between the organisms.

(6) The protective serums do not protect against the toxins in the dead bodies of the bacilli any more powerfully than normal serum.

(7) By the injection of normal serum into the peritoneal cavity of guinea-pigs and the subsequent injection, after twenty-four hours, of twice the fatal dose of dead typhoid bacilli, the guinea-pigs can, within two weeks, be immunized to 100 times the fatal dose of living typhoid bacilli.

(8) Guinea-pigs can endure the intraperitoneal injection of typhoid bacilli if one begins them with less than the fatal dose and increases the multiples rapidly, so that within forty-eight hours a forced immunity to 100 times the fatal dose is reached.

(9) By the injection of 0.5 cubic centimetre to 1.0 cubic centimetre of a powerful typhoid serum animals can be saved from the effects of twice the fatal dose (intraperitoneal), which would bring about the death of a non-protected animal in twenty hours.

(10) The results of the experiments bring about a perfect confirmation of the studies of R. Pfeiffer upon the cholera bacteria and cholera serum.

Primary Myoma of the Heart.

Justi (*Centralblatt für allgemeine Pathologie und pathologische Anatomie*, Band VII, No. 1, p. 1) describes an interesting tumor of the heart. At the necropsy the heart was found to be in nearly a horizontal position. The anterior surface was chiefly the right ventricle. The left auricle was prominent, much dilated, and it seemed filled up with circumferential solid masses. The left pulmonary vein seemed to enter one of the tumor-like prominences. Upon opening the left auricle two large knobulated rounded tumors were found, the larger springing from the median, the smaller from the lateral wall by broad bases. The larger was as large as a small apple (six centimetres long, four centimetres broad, and five centimetres high). The second was about the size of a walnut (four centimetres long, three centimetres broad, and five centimetres high). Both tumors touched each other by their inner surfaces, leaving only a small auricular space. The larger tumor extended to the mitral ring, where one of the knobs upon its surface entered the ostium venosum sinistrum. A rounded secondary node the size of a bean extended from the auricular surface of the aortic arch to its free border. The mitral valve was unchanged. The left ventricle is much dilated, the walls measuring 1.5 centi-

metres in thickness. The right auricle is also dilated, though the thickness of the walls is not increased. The right ventricle shows marked dilatation, especially at the conus pulmonalis. Its wall is hypertrophied. The valves are free and normal.

Microscopic examination of teased fragments of the tumor-tissue showed long, narrow, spindle-shaped cells with rod-shaped nuclei. In sections the cells were arranged in bundles which were partly parallel and partly criss-cross. The nuclei were all similar rod-shaped. There was no degeneration of any kind. The tumor evidently grew from the wall of the left auricle.

DERMATOLOGY.

UNDER THE CHARGE OF

LOUIS A. DUHRING, M.D.,

ASSISTED BY

M. B. HARTZELL, M.D.

A New Suppurative and Pemphigoid Form of Cutaneous Tuberculosis.

Under this title Hallopeau describes (*Annales de Dermatologie et de Syphilographie*, No. 12, 1895) a form of cutaneous tuberculosis differing from the usual forms. The affection occurred in a boy, 15 years of age, suffering from pulmonary tuberculosis. The eruption was abundant, and was distributed over the extremities and the lower part of the trunk. It presented itself under diverse forms:

(*a*) The most numerous lesions were miliary pustules scattered about irregularly upon the legs, a few being upon the thighs, but none upon the trunk nor upper extremities.

(*b*) Other elements consisted of red or brown, acuminate elevations of the same dimensions as the preceding, and covered with scales or small crusts. These lesions were very abundant upon the outer and posterior parts of the forearm and in the neighborhood of the elbows. Upon the abdomen they were irregularly grouped, and recalled by their arrangement and aspect lichen scrofulosorum.

(*c*) In different regions these papules formed confluent clusters of a dull red color, with thin and adherent scales. Their dimensions varied from a few millimetres to more than two centimetres in diameter.

(*d*) Plaques having a diameter of six millimetres, the central part of which was depressed and more or less deeply ulcerated. The periphery was slightly elevated, indurated, intensely red, irregularly rounded or oval. A part of their extent was occupied by bullæ which extended eccentrically, and frequently had miliary pustules at different parts of their periphery. These plaques extended at the periphery while they underwent involution in the centre.

Dermatitis Repens.

Stowers (*British Journal of Dermatology*, January, 1896) reports a marked case of this unusual affection. The patient was a woman, 67 years of age, in fair general health. When about 30 years of age, two weeks after the birth of her sec-

ond child, a small "gathering" was noticed in the matrix of the right thumb-nail, which was incised. Shortly afterwards the nail was lost. The wound thus formed never healed, but continued inflamed, and small pustules formed around it at various times. A year later the left thumb became affected in a similar manner. At intervals varying from eight to sixteen months the nails of other fingers became involved, the third and fourth fingers of the left hand alone escaping. The nails of the toes were likewise affected, all being lost except the nail of the third toe of the left foot. The inflammation slowly spread to other parts of the hands and feet, which became covered with dry scales; the second and third phalanges of the fingers, the palms of the hands, the toes and soles of the feet became raw and shiny, and entirely denuded of epithelium. Tingling, itching, and burning accompanied the disease, which were severe enough to interfere with the patient's sleep. This condition of the fingers and toes persisted until the patient's death, at the age of 74, from some gastric trouble, probably carcinoma.

Lupus Erythematosus following Mosquito-Bites.

Malcolm Morris (*British Journal of Dermatology*, January, 1896), at a meeting of the Dermatological Society of London, held December 11, 1895, exhibited a patient with erythematous lupus, which had followed the bites of mosquitoes. During a six months' residence in India, the patient, a nurse, 46 years of age, had been severely bitten by mosquitoes about the face and legs, which became inflamed in consequence. Some months later erythematous lupus began in the scar of a mosquito-bite on the side of the nose; a little later a patch started on the right cheek, and subsequently three more, all having the characteristic signs of the disease.

Diet in Diseases of the Skin.

Brocq (*Beiträge zur Dermatologie und Syphilis, Festschrift, Lewin*, Berlin, 1896), in a recent paper, formulates the following rules concerning diet in diseases of the skin:

The diseases of the skin in which the diet should be regulated are chiefly erythematous, urticarial, vasomotor, acneic, and pruriginous eruptions.

If the patient is attacked by any accidental acute affection with inflammatory tendencies, and it is certain that certain substances produce in him artificial eruptions or increase pruritus, he should carefully avoid their use during the continuance of his disease. Whatever may be his cutaneous susceptibility, he should avoid large doses of alcohol.

If the accidental cutaneous affection from which the patient suffers has no marked inflammatory tendency the problem becomes more complex. If it is a purely parasitic affection, complicated with neither eczematization, lichenification, nor pruritus, the question of diet goes back to the question of the soil upon which the parasite develops, and which it is necessary to modify if it is desired to cause the disappearance of the parasite.

If the affection, although parasitic, is complicated with pruritus, eczematization, lichenification (as in scabies, for example), the patient should be advised to abstain from such alimentary substances as can exaggerate these complications in him; in any case, excessive drinking should be interdicted.

The same remarks apply to artificial eruptions of external or internal origin.

In dermatoses of nervous origin coffee, tea, alcohol in large doses should be forbidden.

In chronic dermatoses which seem to be connected with a gouty constitution the regimen of gout should be prescribed, which should be strictly conformed to for years.

Likewise, in diabetics, the obese, or those with albuminuria; they should follow that alimentary regimen which is appropriate to their visceral affection or general condition, and abstain from substances which are harmful.

From what precedes it is evident that there is no exclusive diet for those with cutaneous diseases. It is only after having made a minute examination of the disease, then of the idiosyncrasies of the patient, his constitution, his morbid tendencies, his mode of life, of his race, and the climate in which he lives, that one can prescribe his diet.

Lupus Vulgaris treated by Acid Nitrate of Mercury.

Sheild (*British Journal of Dermatology*, February, 1896), at a meeting of the Dermatological Society of London, held January 8, 1896), showed a case of lupus vulgaris which he had treated by the acid nitrate of mercury successfully. The patient, a woman 27 years of age, had suffered from lupus vulgaris of the nose for more than four years, and had undergone many scrapings. Acid nitrate of mercury, pure, had been applied by the exhibitor on six occasions under cocaine anesthesia. Under this treatment the parts had healed over soundly, and no trace of lupus tissue could be seen.

MISCELLANEOUS.

THE THIRD INTERNATIONAL CONGRESS OF DERMATOLOGY

will be held in London, on August 4–8, 1896, when the following programme will be observed:

Dermatology.

Tuesday, August 4.—12 noon: President's address. 3 P.M.: Subject, "Prurigo," (1) Dr. Besnier, Paris; (2) Professor Kaposi, Vienna; (3) Dr. J. C. White, Boston; (4) Dr. Payne, London.

Wednesday, August 5.—9 A.M.: Clinical demonstration of cases. 10.30 A.M.: Subject, "The Etiology and Varieties of Keratosis," (1) Dr. Unna, Hamburg; (2) Dr. H. G. Brooke, Manchester; (3) Professor V. Mibelli, Parma; (4) Dr. W. Dubreuilh, Bordeaux. 3 P.M: Papers.

Thursday, August 6.—9 A.M.: Clinical demonstration of cases. 10.30 A.M.: Subject, "The Connection of Tuberculosis with Diseases

of the Skin other than Lupus Vulgaris," (1) Dr. J. Nevins Hyde, Chicago; (2) Dr. Hallopeau, Paris; (3) Dr. Radcliffe Crocker, London; (4) Dr. G. Riehl, Vienna. 2 P.M.: Subject, "Ringworm and the Tricophytons," (1) Dr. Sabouraud, Paris; (2) Professor Rosenbach, Göttingen; (3) Mr. Malcolm Morris, London. Many contributions to this debate promised.

Friday, August 7.—9 A.M.: Clinical demonstration of cases. 10.30 A.M.: Subject, "The Nature and Relations of the Erythema Multiforme Group," (1) Professor de Amicis, Naples; (2) Dr. T. H. Veiel, Stuttgart; (3) Dr. P. A. Morrow, New York; (4) Dr. Stephen Mackenzie, London. 2 P.M.: Clinical demonstration of cases. 3 P.M.: Papers.

Saturday, August 8.—9 A.M.: Clinical demonstration of cases, followed by papers.

SYPHILIS.

Wednesday, August 5.—9 A.M.: Clinical demonstration of cases. 10.30 A.M.: Subject, "Syphilitic Reinfection," (1) Professor Fournier, Paris; (2) Professor Lang, Vienna; (3) Mr. Alfred Cooper, London; (4) Dr. Fitzgibbon, Dublin. 3 P.M.: Papers.

Thursday, August 6.—9 A.M.: Clinical demonstration of cases. 10.30 A.M.: Subject, "The Duration of the Period of Contagion of Syphilis," (1) Mr. Hutchinson, London; (2) Professor Campana, Rome; (3) Professor Lassar, Berlin; (4) Dr. Feulard, Paris.

Friday, August 7.—9 A.M.: Clinical demonstration of cases. 10.30 A.M.: Subject, "Malignant Syphilis," (1) Professor Handlung, Copenhagen; (2) Professor Neisser, Breslau; (3) Professor Tarnovsky, St. Petersburg. 2 P.M.: Clinical demonstration of cases. 3 P.M.: Papers.

Saturday, August 8.—9 A.M.: Clinical demonstration of cases, followed by papers.

The Congress has been fortunate enough to secure for its use the building known as Examination Hall, on the Victoria Embankment. This will afford every facility for all kinds of demonstrations; cases, pictures, museum, etc. Special efforts are being made to have large clinical demonstrations of cases, and all who have been in London know how rich is the material there.

It is of the greatest importance that those intending to join the Congress should notify the secretary, Dr. J. J. Pringle, 23 Lower Seymour St., W. London, of their intention as soon as possible. The membership fee is $5.00, which should be sent in the form of a one-pound sterling draft on London, or P. O. order to the same amount.

GEO. THOS. JACKSON, 14 E. 31st St., N. Y.,
Secretary for the United States.

CORRESPONDENCE.

CASTRATION FOR PROSTATIC HYPERTROPHY.

To the Editors of the UNIVERSITY MEDICAL MAGAZINE.

Dear Sirs: The accompanying correspondence has been received since I forwarded the letters published in the March issue of the MAGAZINE. As it concerns a subject which is comparatively new, and upon which it is desirable to get as much information as possible, I send it for publication. I do not strike out the allusions to myself in the first two letters because, even though undeserved, they testify so graphically to the relief experienced by the patients

Very truly yours,

J. WILLIAM WHITE.

LOS ANGELES, February 29, 1896.

Dear Doctor Haynes: Had I submitted to castration two years ago what a deal of pain and distress I would have escaped. Now I have no pain,—no discomfort, I lie down at night and sleep as sweetly as a child. I urinate as easily and naturally as I did when a boy. I have a fine appetite. In fact, *I am well.* It is a blessing to live now. I can walk all over town. The world is no longer gloom,—all things to me have the brightness of youth.

Uriah Heep in prison advised all men to get "took up," so happy was he in the enjoyment of prison life. So I advise all old men possessed with the devil of enlarged prostate to submit to castration. Though "two stone" less in weight, they will escape the horrors of prostatic hypertrophy and live to bless Dr. White as one of the benefactors of mankind. At any rate, he has my eternal gratitude for the discovery. And I certainly thank you for the skilful and able manner you afforded relief by the operation. No more desire to micturate day and night, no more priapism. No more sexual irritation and constant vexation. I am not now conscious that I have a genital apparatus. Had I two years ago known what happiness was in store for me through emasculation, I would at length, like Origen, have been tempted to self-mutilation if no other solution was offered.

I feel that I have a new lease of life, and have many years of enjoyment before me. It certainly looks that way now.

——— ———, M.D.

LOS ANGELES, March 17, 1896.

DR. WHITE.

My dear Sir: Dr. Haynes has sent or will send you a report of my case. I gave him a brief and requested him to fill it up properly for you. I would be glad to have it published in the medical journals. I am grateful to you, sir, for calling the attention of the profession to double castration as a remedy for what I before thought to be an incurable ailment. I suffered much with it until I submitted to the operation of double castration. Now all is changed. I suffer none. I never

felt better in my life. I was operated on by Dr. Francis L. Haynes, of this city, on the last day of December.

I sleep well, eat well, and feel well in every respect. All that is lacking now is to be rid of the residual urine, which is about four or five ounces. I use the catheter simply to find how much residual urine there is. Urine proper color and good odor, of normal quantity.

You and Dr. Haynes must have my gratitude for what I now enjoy, for day after day and night after night I am so comfortable I can hardly realize what a change there is in my case.

Yours truly, ——— ———, M.D.

CLAREMORE, IND. TER.

PROFESSOR J. WILLIAM WHITE, Philadelphia, Pa.

Dear Sir: On the morning of November 22 I castrated an old gentleman for chronic hypertrophy of the prostate gland, and, you being the father of the operation, I thought I would report the case to you. My patient was 69 years old. The prostate gland was as large as an ordinary orange. Residual urine, thirty-two ounces. He claimed that towards the last he had to void urine every fifteen minutes during the night.

My patient did well after operation, the incisions uniting by first intention, until about the seventh day after operation, when a severe attack of cystitis set in.

On the eighth day he became unconscious, and remained in this condition till the evening of the fourteenth day, when he died. I feel satisfied that the operation was a success, as the wounds healed without a drop of pus, and he seemed almost well of the operation. The prostate gland had begun to diminish in size.

I think this the first operation of this kind (prostatic hypertrophy) ever done in this Territory, and I do not know of one being done nearer than California.

Yours truly, J. M. BOLING, M.D.

61 QUEEN STREET, EAST, TORONTO, July 12, 1895.

Dear Doctor White: I wrote you about a case in which I had removed a two and a half inch section of each vas, September 3. The patient gradually improved, although not in a satisfactory manner, for six or eight weeks, when he developed great pain in each testicle and over the pubes,—and the frequency of urination increased.

I had no opportunity of seeing him until the 3d inst., when I found both vasa intact, having united; the left testicle was a well-formed one, while the right was somewhat atrophied. On the 4th I removed the testicles, and on the evening of the 6th he micturated at 5 and 8 P.M., 2 A.M. and 11 A.M., having retained the urine without distress nine hours, something he has not done for more years than he can remember.

The case will be reported later with sections of the vas, but I thought you might like to hear of it in advance. The union of the severed ends of the vas was and is to me marvellous.

Yours very truly, EDMUND G. KING, M.D.

DENVER, COL.

DR. J. WILLIAM WHITE, Rittenhouse Square, Philadelphia.

Dear Doctor: I beg to report to you the result in a case of double castration for enlarged prostate.

The patient, 77 years old, had suffered from enlargement of the prostate for about five years; I had treated him by systematic catheterization for perhaps six

months before subjecting him to a perineal prostatotomy, in November, 1894. The benefit derived from this operation was slight and only temporary; three months afterwards his cystitis and difficult urination were as bad as ever. Double castration in February, 1895. Shock pronounced and followed by acute melancholia for a period of sixty days. During this period catheterization continued necessary. With the return of mental control he regained control of his bladder and his symptoms were markedly improved. Four months after operation he left this city for California, having complete control of his bladder; it was only necessary for him to rise once or twice in the night; rectal examination revealed a decrease of size to about one-third of what it had been before the castration. No other prostatic case or operation has given me such satisfactory results as were obtained in this case.

Very respectfully yours, WILLIAM P. MUNN, M.D.

CHARITY HOSPITAL, NEW ORLEANS, LA., March 22, 1896.

DR. J. WILLIAM WHITE, Philadelphia, Pa.

Dear Doctor: If you are still getting notes on castration for enlarged prostate, I can give you two recent cases in my own service. One man had not passed his urine naturally for six months, and the prostate was enormously enlarged. He passed his urine six days after the operation, and has continued to do so since. The other gave a good result, but the prostate was not so large, and he had only been suffering from retention for about ten days. In the last case both testicles were cystic. Enclosed you will find a reprint that may interest you. With regards, I am,

Yours very truly,

W. E. PARKER.

The following pathological report was kindly sent to Dr. White by Dr. C. B. Kelsey, of New York, and refers to a case which died some days after castration. It will be observed that the effects of the operation in producing atrophy were, as Dr. Brooks says, "not pronounced."

NEW YORK, January 31, 1896.

My Dear Dr. Kelsey: The following is a brief report upon the prostate removed from castrated patient:

REPORT.

Mr. ——, aged 69. Prostate removed six hours after death. Weight, forty-five grammes. Dimensions, antero-posterior diameter, one and three-quarters inches, transverse diameter (base), two and a half inches; depth, one inch.

Gross Appearance.—Color, dark red. Consistence firm, dense, moderately friable. The cut surface, mottled and of a dark reddish-gray color, shows numerous delicate, silvery, grayish-white, and grayish-red bands, united to form trabeculæ of greater or less density and thickness, encircling prominent, irregularly outlined, nodulated foci, which are pale, yellowish-white in color, and of succulent consistence. These foci vary in size from that of a millet-seed to that of a small pea.

Microscopical Examination.—In teased preparations from the fresh organ, the elements composing the stroma—unstriated muscle, fibrous and elastic tissues—appeared to be well preserved and in normal proportion. Individual cells symmetrical, nuclei prominent, well defined, and distinctly visible; protoplasm clear or faintly granular. Rarely a cell filled with minute droplets of fat was seen; also a few free fat droplets floating in the fluid (normal salt solution) surrounding the fragments of tissue. Fibrous elements somewhat in excess of unstriped muscle

structure. Most of the epithelial cells from glandular ducts presented no strikingly abnormal alterations. The greater portion of them possessed distinct nuclei and quite clear, nearly homogeneous, protoplasm containing but few granulæ. A very small number were partially disintegrated, slightly pigmented, and filled with minute fat granules and occasional large oil drops. These disorganized cells were prominent by virtue of their rarity.

In unstained sections from frozen tissue the stroma was seen to be composed of well-preserved, somewhat tortuously distributed, unstriated muscle-fibres, and more or less densely arranged fibrous connective tissue, the latter in excess. Stroma decidedly greater in amount than glandular structure; though this was not much more pronounced than is frequently the case in the normal prostate, especially in the lateral lobes. On careful search, a few isolated cells containing distinct drops of fat in minutest division could, now and then, be found lying embedded between apparently normal muscle elements. Notwithstanding the presence of fat, the nuclei and general contour of these cells were perfectly retained. Sometimes free fat globules were seen lying between the connective-tissue fibres; but it is believed these could readily have been, and probably were, originated during cutting and mounting the sections. The epithelia (often in double layers) lining the ducts appeared to be in normal relation to each other and in a good state of preservation; contour uniform and nuclei distinct; protoplasm clear or but slightly granular. Fat was very rarely observed in the glandular structure, and then only in the form of minutest droplets, and confined chiefly to lumina or to cells of the superficial layers projecting into the duct passages. Occasionally the lumen of a duct, presenting intact lining epithelia resting upon basement membrane, was seen partially or wholly occluded by an amorphous, or finely granular, substance enclosing several partially disintegrated cells and a few fat droplets. The great majority of the lumina of the ducts were comparatively free, or showed slight traces of granular detritus or deposits of other nature.

On the whole, the changes observed in the fresh tissue were not sufficiently pronounced to warrant the assumption that atrophic processes had, to any great extent, been established.

Study of the frozen sections, hardened in formalin and alcohol, in increasing strength, and subsequently stained with Boehmer's hematoxylin and borax carmine, revealed even less evidence of atrophic changes. Excluding fat, the description given above under examination of fresh tissue applies here. The best-stained portions of the sections were invariably the epithelial cells lining the tubules,—parts where alterations would most naturally be expected. The only change remarked was a slight increase in the amount of fibrous connective tissue as compared with the muscular structure. This alteration seemed to be confined to certain areas. In other areas the glandular structure was in excess, the various lobuli being almost in apposition. In other areas, again, the separating partitions were composed almost wholly of muscle tissue.

Corpora amylacea not observed.

HENRY T. BROOKS.

BOOK NOTICES.

PEDIATRICS: THE HYGIENIC AND MEDICAL TREATMENT OF CHILDREN. By THOMAS MORGAN ROTCH, M.D., Professor of the Diseases of Children, Harvard University. 8vo, pp. 1124. Illustrated. Philadelphia: J. B. Lippincott Co., 1896.

Dr. Rotch has adopted the plan of describing first the fetal circulation, then the external characteristics and the organs of the normal infant at term, and next the normal development of the child from infancy to the twelfth year. These two divisions of the book cover 124 pages, and contain a large amount of anatomical and statistical information on all points, from vernix caseosa to bone-marrow and blood, and including tables of the pulse, respiration, and temperature. Minute detail seems, in fact, to be aimed at by the author. The next two divisions, on hygiene of the nursery and on feeding, comprise about 160 pages, are the most valuable in the book, covering the subjects with which the author has particularly identified himself. Complete descriptions are given of the Walker-Gordon Milk Laboratory, and of the method of separating cow's milk and recombining it in the proportions best suited to the requirements of individual children. Dr. Rotch does not approve of the use of any of the patent infant foods. But what are infants to do until milk laboratories are numerous enough to become a real factor in their feeding? The author would have done well, it seems to us, to have written also directions for feeding where no milk laboratory is accessible. The truth is that the great majority of infants thrive very well on cow's milk without much modification, except dilution, if only the milk be fresh to start with. By "fresh" we mean obtained for use within six or twelve hours of the milking. When such milk cannot be had, and there is no milk laboratory, we are compelled to resort to special preparations, either alone or as adjuvants of the milk. We suspect, too, that there are some infants that will do better with the assistance of artificial foods than with the most exact "modification" of a milk laboratory.

Division V deals with premature infants, and gives much useful information. Division VII treats of the blood in infancy and childhood. It is a very valuable section, for which the author cheerfully acknowledges his indebtedness to Dr. W. F. Whitney and to Dr. A. H. Wentworth. Seventy-four pages are devoted to it. At the conclusion is a bibliography.

With Division VIII the author takes up the diseases of the newborn, following which come diseases of the skin and the exanthemata.

Division XI treats of diseases of the nervous system and the myopathics. It is the largest section of the book, covering 184 pages. Then follow diseases of the mouth, nose, naso-pharynx, and pharynx, diphtheria, diseases of the stomach and intestine, diseases of the liver, pancreas, spleen, and peritoneum; diseases of the kid-

neys, bladder, and genital organs; diseases of the lungs and pleura; diseases of the heart and pericardium; while the concluding Division (XVIII) is devoted to "unclassified diseases,"—rhachitis, scurvy, rheumatism, purpura, diabetes, etc. Two of this group, tuberculosis and epidemic influenza, are strangely out of place here.

Dr. Rotch's book possesses certain peculiarities among works on pediatrics, and these peculiarities are for the most part excellences as well. It treats especially of infants and very young children. It aims to present all useful information about the normal infant and how to manage abnormal conditions by feeding and appropriate hygiene. Drugs occupy a very subordinate position in the author's treatment of disease. This is as it should be, but we think he carries it too far. Another peculiarity is that it is written almost entirely from the author's personal experience. His right to do this may be judged from the fact that he cites no less than 542 illustrative cases. The book is profusely and beautifully illustrated. In a subsequent edition we hope to see some condensation and an abandonment of the lecture style, which is both awkward and tedious. But, as a whole, Rotch's "Pediatrics" is welcomed as a distinct advance upon any work on diseases of children. It opens up a new field.

Pictorial Atlas of Skin-Diseases and Syphilitic Affections, in photo-lithochromes from models in the Museum of the St. Louis Hospital, Paris, with explanatory wood-cuts and text. By Ernest Besnier, A. Fournier, Tenneson, Hallopeau, Du Castel, Henri Feulard, and Léon Jacquet. Edited and annotated by J. J. Pringle. Part I and II. London and Philadelphia 1895.

This work, of which two parts are now before us, is a valuable and handsome contribution to dermatological literature. The title indicates plainly the scope of the atlas, but we are informed that only typical cases will be reproduced. The models from which the pictures are copied constitute by far the finest and largest collection in the world. They are works of art.

The reproductions, as figured in the parts of the atlas under consideration, are very faithfully executed, and leave nothing to be desired.

The contributors, who select the cases and furnish the text, are all dermatologists of the highest distinction, and whose names are a guarantee that the work throughout will be of the best character.

Part I contains Lupus Vulgaris of the centre of the face, by Besnier; Dermatitis Herpetiformis of the back of the hand and wrist, by Tenneson; Syphilitic Chancre of the Vulva, by A. Fournier; and Purpura Hemorrhagica, by Henri Feulard.

Part II illustrates Lupus Erythematosus of the face, by H. Hallopeau; Hypertrophic Rosacea of the forehead, resembling lepra, by E. Besnier; Circinate Papulo-Squamous Syphilide of the face, by G. Thieberges; and Exanthema Planum et Tuberosum of the face and of the palm of the hand, by J. Darier. All are

colored with remarkable fidelity, and in no instance are they over-colored, which is such a common fault with atlases. The work (which is published in Philadelphia by W. B. Saunders, and is to be completed in twelve parts) can be recommended in the highest terms.

Clinical Lectures and Essays on Rickets, Tuberculosis, Abdominal Tumors, and other Subjects. By Sir William Jenner, Bart., G.C.B., M.D., London, etc. 8vo, pp. xii, 329. New York: Macmillan & Co., 1895.

The present volume consists of clinical lectures, and of papers published in medical journals, and in Quain's "Dictionary of Medicine," and Russell's "System of Medicine." There are thirteen lectures and papers in all. They cover the years between 1851 and 1882. The author has left the statements in his lectures and papers exactly as they were originally given, without attempting to embody the results of more recent investigations. While admitting, for example, that histological researches have shown the identity of the ultimate pathological products of tuberculosis and scrofula, Sir William still maintains that the constitutional states which precede the local manifestations are of a different type in these two disorders, and deserve separate consideration.

In his belief in the heredity of tuberculosis he goes further than most persons would at this day. He says of inherited tuberculosis, "The germ anterior to the formation of the blood, and even before it has divided into parts, is the subject of tuberculosis, and as a consequence the parts formed from that germ partake of its constitution; and we see the result . . . in every fibre and every cell of the frame." But it is impossible to review in limited space a wise man's best thoughts on a number of subjects during thirty years. Perhaps the most remarkable fact that is impressed upon the present reader of Sir William's lectures and papers is that they require so little alteration to bring them into accord with modern clinical teaching. We say modern clinical teaching because only one of the papers composing the volume under consideration was written later than 1871,—namely, the paper on Deformities of the Chest, which was written for Quain's "Dictionary of Medicine," in 1882. The explanation for the permanent value which Jenner's writings possess is to be sought, no doubt, in the fact that they are based largely upon the personal experience of a singularly acute observer, who had, besides, a logical mind and a tenacious memory. If, instead of recording accurately his experience, he had entered into pathological discussions based upon the knowledge of twenty and thirty years ago, his writings would not now be fit for publication without extensive revision. As it is, there is not a paper but repays careful reading. We have been especially pleased with the Lectures on the Diagnosis of Extrapelvic Tumors of the Abdomen, which were delivered at University College Hospital in 1868. Sir William is to be congratulated that what he has written has been so well considered as still to be useful and to merit republication after the lapse of forty years.

MANUAL OF GYNECOLOGY. By HENRY T. BYFORD, M.D., Professor of Gynecology and Clinical Gynecology in the College of Physicians and Surgeons of Chicago, etc. Pp. 488.

This compact little volume recommends itself for various well-defined reasons. In the first place, the material is presented in a concise and attractive form, each subject being allotted a special chapter so as to be the more readily accessible. Secondly, the illustrations, which are numerous, have been well chosen, and many are entirely new; they are clear and admirably emphasize the points which it was intended they should. Thirdly, the system adopted is original and very satisfactory. The subject matter is grouped into ten sections as follows: Diagnosis and Treatment, Development and Anomalies of Development, Functional and Nervous Diseases, Traumatic Lesions of the Genital Tract, Displacements, Inflammatory Lesions, Genital Tuberculosis, Malignant Diseases, Tumors of the Female Genital Organs and Ectopic Pregnancy, Pelvic Hematocele and Pelvic Hematoma. The teaching is the accepted teaching of the day, with a few minor exceptions which, it is to be hoped, will be corrected in the revision of the work. Thus, for example, tuberculosis of the tubes is said to occur in but 8 per cent. of the cases of tubal disease, while the more recent investigations of Williams and others show that this percentage should be increased to from 12 to 20 per cent. Again, the use of electricity in the treatment of uterine fibroids is countenanced, notwithstanding the very general feeling that has been expressed against the use of this agent, even by many of its former advocates. Finally, the view is expressed that the proper treatment of the pedicle in abdominal hysterectomy is still undetermined, and the extraperitoneal method is given among those that are recommended by the author. With such exceptions as the foregoing the book is a most admirable one and worthy of the highest endorsement.

THE YEAR-BOOK OF TREATMENT FOR 1896. A clinical review for Practitioners of Medicine and Surgery. Philadelphia: Lea Brothers & Co., 1896.

This Year-Book of Treatment, in the twelve years of its publication, has won for itself such an enviable reputation that more than an announcement of a new edition seems superfluous. The extraordinary activity displayed in certain fields of therapeutic investigation renders a book of this kind almost indispensable to the busy practitioner. The names of the twenty-six editors to whom the work has been intrusted are a sufficient guarantee of the authoritative character of the articles. In the present issue we note the addition of a new section on tropical diseases, by Dr. Patrick Manson. The volume closes with a classified list of the best new books, a section on medical instruments and surgical appliances; pharmaceutical and dietetic novelties, and a complete index of subjects.

UNIVERSITY
MEDICAL MAGAZINE.

MAY, 1896.

CYSTIC DISEASE OF THE CHORION: WITH A TABULATION OF ONE HUNDRED CASES.[1]

By W. A. Newman Dorland, M.D.,

Assistant Demonstrator of Obstetrics, University of Pennsylvania; Instructor in Gynecology, Philadelphia Polyclinic.

AND

T. Perceval Gerson, M.D.,

Of Johns Hopkins University, Baltimore, Md.

On the morning of July 20, 1895, there appeared at the Gynecologic Dispensary of the Pennsylvania Hospital D. C., a tall, well-developed Russian Jewess, who intellectually was much superior to others of her class, and who gave the following history: She was 25 years of age, and was at that time three and a half months advanced in her fifth pregnancy. She had given birth to three children at term and one miscarriage; her youngest child was 2½ years of age. Her labors had been of ordinary severity. She stated that she was averse to having more children, and that for the past two years she had been adopting measures to prevent conception, including the practice of onanism, and the use of vaginal injections. She was exceedingly weak and emaciated, and markedly anemic at the time of her visit, but had formerly enjoyed excellent health. Her menstrual periods had been regular. Notwithstanding her efforts at enforced sterility she had conceived, and gestation had to all appearances advanced in a perfectly normal manner until the ninth week. At this time she began to have a slight bleeding, which persisted as an almost daily show until the date of her visit to the hospital, five weeks later. The constant flowing was unattended with pain at first, but later she had

[1] Read before the Barton Cooke Hirst Obstetrical Society, of the University of Pennsylvania.

suffered with slight colicky pains in the lower abdomen, of sufficient intensity, however, to excite considerable apprehension,—hence her application for relief.

An examination made at this time elicited all the signs of early gestation, including a very soft cervix and a moderate degree of uterine enlargement, about corresponding to, or perhaps, a little over that of the supposed period of pregnancy. The cervix was somewhat patulous and there was a moderate flow of red blood. The diagnosis of a threatened abortion was made, and the patient was given one dram doses of the fluid extract of viburnum prunifolium three times daily, and ordered to confine herself to bed until the flow had ceased. Three days later, the bleeding having persisted, but without any appreciable increase in the amount, she was given a suppository of the aqueous extract of opium night and morning. In two days' time she reported that there had been no amelioration of her symptoms. The treatment was continued, and after an absence of nine days she returned on the morning of August 3, reporting that there was at that time but a slight flow, and that she was feeling considerably improved. It was noted, however, that there was a progressive emaciation with marked sallowness of the skin.

Eleven days passed when she again appeared in a decidedly worse condition, with a return of the bleeding, and the addition of severe abdominal pain. She stated that she had been discharging small clots for the past two or three days. She was also suffering exceedingly from hemorrhoids. An examination made at this time revealed a still more patulous condition of the external os, and the finger, gently introduced, detected dilatation of the internal os, and the presence of a spongy material feeling very much like placental tissue. It was also noted that the fundus of the uterus was much enlarged, reaching well up to the umbilicus. The amount of abdominal resistance did not permit a close study of the degree of consistence of the uterine tumor. A diagnosis of placenta previa was made, and the patient was given my address and commanded to send for me at once should there appear any considerable increase in the amount of hemorrhage. This was the morning of August 14.

Four days later, at 5.30 A.M,—the patient now being four and a half months pregnant,—I was hastily summoned by note which stated that the woman was bleeding to death. When I reached her the hemorrhage had ceased, but the bed, bedclothing, and floor were drenched with blood, and her mother showed me a chamber-pot half filled with clotted blood, but containing no membranes or other portion of an ovum. A glance was sufficient to show that the patient was almost exsanguinated. A careful examination revealed the os

dilated to the size of a quarter of a dollar, but filled with a protruding mass of spongy material which I judged to be placental tissue. The patient informed me that on the previous morning she had suffered from a smart hemorrhage, and had passed a fragment of meat-like substance that had contained one or two bladder-like structures.

Fearing a renewal of the hemorrhage if I should displace this plug, I sent for Dr. Alfred C. Wood, who etherized the patient. When completely anesthetized I dilated the os and removed with the fingers a large mass—over two quarts—of a substance very closely resembling boiled tapioca, and which I at once recognized as cystic degeneration of the chorion. But very little bleeding attended the evacuation of the mass, and the uterus contracted firmly as the cavity was emptied. After giving a hypodermatic injection of ergotin and an intrauterine douche of mercuric-chloride solution (1 : 3000), a strip of iodoform gauze was introduced and the patient placed in bed. An examination of the removed uterine contents revealed no trace of a fetus, and but a small portion of placental tissue—about two by two inches in size—was found. The cysts, which varied in size from a very minute vesicle to one as large as a small-sized grape, were white or pinkish-white in color, and translucent. They were not pedunculated, but seemed to be loosely grouped together without any special relationship to one another.

The progress of the case was very satisfactory. The evening temperature on the day of delivery was 101° F., and the next morning 100° F., with a pulse of 102. The following morning the lochia became exceedingly offensive, although there was no elevation of temperature over 100° F., and the pulse remained but moderately accelerated. Under the use of mercuric-chloride douches of 1 : 2000 strength, the fetor was destroyed and the patient steadily regained her strength and color. She remained in bed for two weeks, at the expiration of which time she was practically well, the uterus being well advanced in involution and sunk beneath the pelvic brim. Two weeks later she again visited the hospital to report progress, and even at that early period had regained considerable flesh and color.

Shortly before this time, Kehrer,[1] of Heidelberg, had published a paper containing the reports of fifty hitherto unpublished cases of cystic disease of the chorion, which he had gathered in two years' time, from forty-eight midwives and physicians in the lowlands of Baden. It was the opinion of all with whom he had corresponded that the disease was one of considerable rarity. His object in gathering unreported cases was to arrive, if possible, at a more accurate knowledge of the peculiarities of the disease, for he believed that the

[1] Archiv für Gynäkologie, 1894, Band XLV, Heft 3.

cases that found their way into the medical journals were more probably those that had terminated favorably, and would not, therefore, present a true picture of the gravity of the disease.

Admitting that there was much truth in Kehrer's arguments, it being deplorably true that medical men are not apt to report their failures, I was stimulated, however, by this interesting case in my own practice, and by my perusal of Kehrer's paper, to put the matter to the test. At the expense of much time and trouble, therefore, and with the kind assistance of Dr. T. Perceval Gerson, of Johns Hopkins Hospital, and Dr. George C. Küsel, of this city, I have collected from current medical literature 100 reported cases of the disease, which I have tabulated, and from which I have formulated conclusions. These I have compared with the studies of Kehrer with the following results:

In the first place, as regards the age at the time of the molar birth. In 15 per cent. of the cases the age of the woman is not stated, but from the histories of the cases in eight instances in which the patients were described as "young" married women, it is fair to presume that they were under 30 years of age. In 8 per cent. the patient was under 20 years, the youngest being a single girl of 13. The larger percentages occurred between 20 and 40 years of age; thus, between 20 and 30 years one-third of the cases (33 per cent.) are noted, or, if we include here the eight women whose ages are not given, but who were presumably under 30, we have a percentage of 41 occurring in the third decade of life. Twenty-seven per cent. of the women were between 30 and 40 years of age, and 11 per cent. between 40 and 50 years, while but 5 per cent. were over 50; the two oldest women having each attained the age of 53. It will thus be noted that 68 per cent. of the cases occurred between 20 and 40 years of age, while only 8 per cent. were under, and 16 per cent. over, this period, leaving 7 per cent. undetermined. Two per cent. of the cases occurred in colored women, one 29 years of age, and the other a mulatto of 42, and 5 per cent. occurred in single women, four of these being under 20 years (13, 16, 17, and 17), and one 24 years of age. These figures very closely approximate those of Kehrer, who found in his fifty cases that 4 per cent. happened before the twentieth year, 38 per cent. between 20 and 30 years, 36 per cent. between 30 and 40 years, 18 per cent. between 40 and 50, and 4 per cent. over 50 years of age. It will be noted that 74 per cent. of Kehrer's cases occurred between the twentieth and fortieth year as compared with 68 per cent. of my own table. Sixteen per cent. of my cases occurred in advanced years,—that is, after 40 years of age,—while 22 per cent. of Kehrer's cases occurred during the same period. This goes to prove the rela-

tive frequency of the molar births late in life as compared to normal childbirth.

Number of Previous Pregnancies.—In 9 per cent. of my cases it is not stated whether the patient had previously given birth to children. In 24 per cent. the molar birth occurred in primiparæ, as compared with 10 per cent. of Kehrer's table. Of the remainder, 8 per cent. were multiparæ, the number of previous children not being noted; 14 per cent. had given birth to one child; 7 per cent. to two children; 6 per cent. to three children; 5 per cent. to four children; 2 per cent. to five children; 4 per cent. to six children; 4 per cent. to seven children; 2 per cent. to eight children; 3 per cent. to nine children; 3 per cent. to ten children; 1 per cent. to eleven children; 2 per cent. to twelve children; 2 per cent. to thirteen children; 2 per cent. to fourteen children; and 1 per cent. to fifteen children. Eighteen per cent. of the women, or 23½ per cent. of the multiparæ, had aborted one or more times.

Previous Health.—In 36 per cent. of the cases no mention is made as to the previous condition of health. Forty per cent. of the women had always enjoyed excellent health and presented normal menstrual histories, while in 25 per cent. of the cases the record is that of poor health. Most of these delicate women suffered from anemia and irregular menstruation, with periods of suppression or a history of too profuse flow. One was of the scrofulous diathesis; one had suffered from an attack of typhus fever one year before; one had had a gastric ulcer; one was insane, believing herself to have hydrophobia; one was melancholic and attempted suicide by cutting her throat; and one was suffering from a chronic cardiac disease. It would appear from these statistics that the previous condition of health exerted little, if any, influence upon the development of the chorionic disease.

Symptoms during the Pregnancy.—Fifty per cent. of the women suffered from nausea and vomiting during the molar pregnancy, in many the symptoms being more or less constant and severe. Generally it became more marked towards the close of the gestation. Eight per cent. of the women did not present this symptom, and in 42 per cent. no statement is given. This cannot, therefore, be regarded as an especially characteristic clinical manifestation of cystic degeneration of the chorion. One woman presented the symptom of pica in an aggravated form.

Fully half of the women suffered from anemia and debility to a marked degree, and a number of these were prostrated to such an extent as to necessitate their confinement to bed for a portion of the pregnancy. It would seem very evident, therefore, that women with

this abnormal condition in the uterine cavity are especially prone to suffer from an undue debility which is probably largely dependent upon the hemorrhages from which they suffer.

Albuminuria and edema of the lower extremities or general anasarca were noted in 19 per cent. of the cases, a frequency sufficient to attract attention and to call for a closer study as to the coexistence of renal derangement and cystic disease of the ovum. It would be fair to state that renal insufficiency, or the kidney of pregnancy, is at least three times as frequent in this condition as in normal gestation.

Abdominal pain was a marked symptom in 38 per cent. of the women, and when present was usually first noted towards the close of the gestation. It partook of the character of labor pains, and in some instances was exceptionally severe. Thirteen per cent. of the women had absolutely no pain before the onset of labor, while in almost half of the cases no mention of this symptom is made. It is probable that the origin of this pain is the extreme and rapid development of the uterine tumor which was noted in 85 per cent. of the cases. By the time of the third or fourth month in the vast majority of the cases the abdominal distention and uterine growth were equal to that of the sixth or seventh month of normal gestation, the fundus uteri reaching to or extending slightly above the umbilicus. On palpation the tumor was generally noted to be of a greater consistence than the cystic tumor of pregnancy, non-fluctuating, but of a peculiar doughy or mushy feel. Absence of the uterine souffle is the rule. A number of the women claimed to have felt fetal movements.

Uterine hemorrhage is a constant symptom, in many instances occurring as an excessive flow at irregular intervals, or, as in my own case, persisting as a daily stillicidium until the final profuse hemorrhage ushering in the expulsion of the mole. Generally the bleeding does not commence before the second or third month, and at times it partakes rather of the nature of a watery or sanguineous discharge than of a true hemorrhage. Once established, the flowing persists in increasing amounts at irregular intervals. Kehrer believes that the hemorrhage results from imperfect attachment of the diseased chorionic villi to the decidual tissue.

Time of Birth.—The month of pregnancy in which the expulsion of the mass occurs varies. In my own table in 6 per cent. of the cases the time is not given. In 6 per cent. it occurred during the second month; in 20 per cent. during the third month; in 31 per cent. during the fourth month; in 12 per cent. during the fifth month; in 15 per cent. during the sixth month; in 2 per cent. during the seventh month; in 4 per cent. during the eighth month; and in 3 per cent. at term. Sixty-three per cent. of the cases, therefore,

occurred from the third to the fifth months inclusive, as compared to 74 per cent. in Kehrer's table. But 3 per cent. of my cases arrived at term, while Kehrer showed a percentage of 4. The time required for the expulsion of the mass was usually short, not exceeding four to six hours in most of the cases. The labors, however, as far as suffering was concerned, closely resembled the normal. The pains were intermittent, colicky, and often severe, and attended with profuse bleeding in most of the cases.

Size and Nature of the Mole.—Almost without exception the mass discharged was of considerable bulk, varying from a pint to over a gallon. The description of the size varies. In one instance it filled a dinner-plate; in others it is described as immense or enormous; repeatedly it was said to half fill or to fill completely an ordinary chamber-pot or hand basin. In one case it was said to weigh six or seven pounds; again, four pounds, and again, between two and three pounds. In one case it was described as one and a half times as large as a fetal head at term.

Generally the mole consisted of the usual clear or translucent vesicles of a whitish or pinkish-white color, and varying in size from a pin's head to a walnut. These cysts contained the characteristic watery fluid. In 1 per cent. of the cases the disease had occurred at a preceding pregnancy. In 21 per cent. of the cases fragments of placental tissue and fetal membranes were discovered, and in 6 per cent. of the cases an embryo or fetus either preceded or followed the discharge of the mass.

The mole was expelled spontaneously in 39 per cent. of the cases, and in the remainder of the patients was driven out either by strong uterine contractions induced by the action of ergot, or was removed by the hand or curette.

Sepsis.—There is a great tendency to the manifestation of septic intoxication after the delivery of an hydatidiform mole. In my table 31 per cent. of the women, or nearly one-third of the cases, developed a certain degree of sepsis, as shown by an elevation of temperature, rigors, and fetid lochia. Five of the cases resulted fatally.

Mortality.—The mortality as shown by my table is probably a little under the usual percentage, thus proving the truth of Kehrer's statement that fatal cases, as a rule, are not reported. The table shows a mortality of 10 per cent., 3 per cent. perishing from hemorrhage at the time of delivery; 2 per cent. succumbing shortly after delivery to the effects of perforation of the uterine wall; and 5 per cent. dying at varying periods during the puerperium of septic infection.

A tabular arrangement of the cases is appended.

History of the Pregnancy.

Number.	Reporter.	Reference.	Name.	Social State.	Age.	Previous Pregnancies.	Abortions.	Previous Health.	Gastric Symptoms.	General Symptoms.	Pain.	Hemorrhage.	Abdominal Enlargement.
1	Anderson, W.	Lond Med. Reposit., 1827, XXVIII, 403.	Mrs. E.	M.	22	2	0	Sparehabit; a fright when 3 mos. pregnant.	. . . .	Felt quickening.	Some bearing down.	First at 7th mo.; slight in amount.	Great.
2	Andrew, John.	Glasgow Med. Journ., 1832, V, 68–74.	M. R.	S.	16	0	0	Poor for 6 mos., spitting of blood; mental depression.	. . . .	Weak; anemic; attempted suicide at 6th month by cutting throat.	Irregular bearing down.	None.	Rapid; size of eighth month of gestation.
3	Ibid.	Ibid.	Mrs. F.	M. 22 mos.	. .	1	1, at three mos.	. . . . .	Nausea.	Slight spitting of blood.	Slight.	None.	Greater than at the sixth month of pregnancy.
4	Ibid.	Ibid.	Mrs. S.	M. 6 mos.	. .	0	0	Poor.	Nausea.	Violent cough; slight spitting of blood.	. . . .	None.	Marked; firm to the touch.
5	Ibid.	Ibid.	S. H.	S.	17	0	0	Good.	Nausea; occasional vomiting.	. . . . .	None.	. . . . .	Size of 7th month of gestation; hymen intact.
6	Armstrong, J.	Liverpool and Manchester M. & S. Reporter, 1874, 53.	Mrs. X.	M.	. .	1	0	. . . . .	. . . .	. . . . .	. . . .	. . . . .	Rapid increase.
7	Ashley, W. H.	London Lancet, 1850, II, 319–321.	Mrs. F.	M. 18 years.	36	15	6	Good constitution; inclined to obesity; menstruation profuse; severe uterine hemorrhage after birth of fifth and succeeding children.	Nausea and vomiting, at times severe.	Anemia; hysteria; extreme debility; dyspepsia; moderate emaciation; vision impaired; bedridden for over two years.	Severe.	Fluid discharges of a dirty white color, at times offensive.	Considerable.
8	Atthill, L.	Brit. Med. Journ., 1878, I, 334.	. . .	. . .	. .	. . . .	. . .	Very delicate; suffering with ulcer of stomach.	. . . .	. . . . .	. . . .	First at 12th week; repeated and profuse after that date.	. . . . .
9	B., J.	Prov. M. & S. J., London, 1842, V, 328.	Mrs. X.	M.	52	Large family.	. . .	. . . . .	Repeated vomiting.	Much weakened.	. . . .	. . . . .	Size of 7th month of gestation.
10	Barnes, Robert.	Trans. Obst. Soc., London, 1865, VII, 117–120.	A. W.	M.	42	11	3, last at third mo., one year previously.	. . . . .	Considerable nausea and vomiting.	Edema of legs; anemic; urine scanty, highly-colored; felt quickening.	. . . .	. . . . .	Abdomen prominent; tumor more to right side, and reaching to umbilicus; firm, elastic, tender.

History of Molar Birth.

Month of Gestation.	Pain.	Hemorrhage.	Description of Mole.	Treatment.	Puerperium.			Result.
					Days in Bed.	Hemorrhage.	Fever.	
Term.	Slight.	Slight.	Weight of mass upward of five pounds; great quantity of fluid; vesicles size of hazel-nuts; piece of placental tissue size of walnut.	Expelled spontaneously.	Usual time.	No.	No.	Recovery.
Sixth.	. . . . .	Considerable.	Discharged a sac the size of a new-born child's head, containing clear fluid; one hour later a large mass of hydatids; two hours later another mass.	Expelled spontaneously.	Thirteen days.	"	"	Recovery.
Fourth.	Severe.	Slight.	Discharged a large sac containing clear fluid, and soon after a large mass of vesicles, weighing about seven pounds; vesicles contained a glairy fluid; no fetus nor placenta.	Expelled spontaneously.	Two weeks.	"	"	Recovery.
Fourth.	Severe; labor-like.	Considerable.	Discharged a fleshy mass resembling placenta, with a number of small vesicles on its surface; no cord or fetus; shortly after expelled a bag containing fluid; a little later passed a hand-basinful of vesicles, size of a pea to a large hen's egg, containing a glairy fluid; the next day nearly as much more was discharged.	Partially spontaneous; manual extraction.	Twelve days.	Slight.	"	Recovery.
Five and a half.	Severe; irregular.	Considerable flooding.	Discharged a large bag containing a glairy fluid, and shortly after a mass of vesicles.	Partially spontaneous; manual extraction.	Usual time.	No.	Slight for two days.	Recovery.
Not given.	Severe.	Profuse.	Mass of hydatids containing a watery fluid.	Manual extraction.	. . . . .	. . . . .	. . . . .	Death at time of delivery, of hemorrhage.
Not known.	Severe; bearing-down.	Considerable.	Discharge of solid masses looking like lard, with cysts, at intervals for a month; about four ounces of solid matter and a large amount of fluid.	Expelled spontaneously.	Four or five months.	No.	No.	Gradual recovery.
Fourth.	. . . . .	Some.	Size of mass not given.	Ergot, tamponning, and hot-water injections.	Usual time.	"	"	Rapid recovery.
Four and a half.	. . . . .	Profuse.	Mass of hydatids of sufficient size to fill a wash hand-basin.	Expelled under action of large doses of ergot.	"	"	Slight.	Recovery good.
Six and a half.	Labor-like.	Some.	Considerable mass of cysts, some as large as a walnut; discharged in several sections.	Galvanism; tampon; finally spontaneous expulsion.	. . . . .	. . . . .	Yes.	Death evening of delivery, of sepsis (stupor, retching, vomiting); uterus contained fibroid tumor size of large orange.

HISTORY OF THE PREGNANCY—*Continued.*

Number.	Reporter.	Reference.	Name.	Social State.	Age.	Previous Pregnancies.	Abortions.	Previous Health.	Gastric Symptoms.	General Symptoms.	Pain.	Hemorrhage.	Abdominal Enlargement.
11	Bartlett, Ezra.	Boston M. & S. J., 1846, XXXIV, 95-97.	Mrs. A.	M.	37	2, youngest six mos.	0	. . . . .	Some nausea and vomiting.	Some edema of feet; considerable debility; bedridden.	Severe.	Slight at the sixth week.	Size of 6th month by the 12th week; no fluctuation.
12	Bass, J. D.	Tr. Texas Med. Ass., 1885, XVII, 382-386.	Mrs. D.	M. 4 mos.	24	0	0	Very delicate; at end of 1st month of pregnancy fell and struck abdomen on chairpost.	. . . .	Anemic.	Slight.	Slight from one and a half mos.	Size of 7th month at four mos.
13	Bennett, Thomas J.	Richmond and Louisville M. J., 1872, XIII, 337.	Mrs. E.	M.	25	0	0	Never enjoyed good health; amenorrhea.	Nausea and vomiting.	Anemic; dropsical for three months.	. . . .	. . . . .	Considerable.
14	Bernardy, E. P.	Unreported.	Mrs. G. S.	M. 5 years.	30	0	0	Good.	. . . .	. . . . .	. . . .	Slight from the fifth month.	Great distention; tumor soft, but hardening under contractions.
15	Bethune, Norman.	Canada Lancet, 1876, VIII, 161.	Mrs. X.	M.	41	14, last three abortions.	7, 4 between 4th & 6th mo. & 3 at 2d mo.	Delicate; highly nervous temperament; poor health for 11 years.	Nausea from date of first hem., day and night; pica.	Anemic; very weak; bedridden.	Severe for 1 week before delivery.	Slight after one and a half mos.; severe for 1 week before delivery of mole.	Uterus reached midway between pubes and umbilicus.
16	Boislinière.	St. Louis Courier of Med., 1879, I, 104-107.	. . .	. . .	. .	. . . .	. . .	. . . . .	. . . .	. . . . .	Slight.	For one week previous to expulsion of mass, watery and sanguineous discharges, followed by alarming hemorrh'es.	Great distention.
17	Bookless, John.	Boston M. and S. J., 1852, XLV, 80.	Mrs. A.	M.	49	12 (all living), labors difficult.	0	Good.	None.	. . . . .	Slight.	None.	Considerable.
18	Borden, F. W.	Med. News, 1884, XLV, 703.	Mrs. P.	M. 18 years.	36	7, youngest four years.	0	Always remarkably healthy; menstruation regular.	None.	Comfortable.	None.	Appeared at 8th week; excessive with piece of membrane.	Moderate.
19	Browne, G. Henry.	Lancet, 1886, August 7, 249.	Mrs. X.	M.	32	Multipara.	0	. . . . .	. . . .	. . . . .	. . . .	Flooding began at sixth week, and continued at intervals.	Abdomen at 3½ mos. size of 7 mos. of gestation.
20	Bryan, John M.	Brit. Med. Journ., 1872, II, 464.	Mrs. X.	M.	38	4, youngest 17 years.	1	Healthy.	Constant nausea and vomiting after 2½ mos.	Considerably emaciated.	. . . .	Slight at 2d mo., and for 6 weeks after there was an inodorous sanguineo-aqueous discharge.	At 4 months uterus extended quite across abdomen, and reached the umbilicus.

HISTORY OF MOLAR BIRTH—*Continued.*

Month of Gestation.	Pain.	Hemorrhage.	Description of Mole.	Treatment.	PUERPERIUM.			Result.
					Days in Bed.	Hemorrhage.	Fever.	
Fourth.	Severe.	Profuse, causing collapse.	Mass of hydatids filling a chamber-pot.	Expelled under the action of ergot.	Seven to eight weeks.	No.	No,	Recovery protracted.
Fourth.	Labor-like.	Considerable.	Size of mass not given.	Manual extraction.	. . . . .	. . . . .	. . . . .	Death early the following morning from hemorrhage.
Eighth.	Moderate.	Slight.	Delivered of a dead fetus; next day hydatid mass, weighing about four pounds; fetus had been dead for probably three months.	Expelled spontaneously.	Usual time.	No.	No.	Good recovery.
Term.	Labor-like.	Profuse.	Mass of cysts and degenerated fetal membranes filling a quart measure.	Manual extraction.	Usual time.	"	"	Good recovery.
Four and a half.	Severe; labor-like.	Considerable.	Mass of hydatids weighing two pounds; size of vesicles pin's head to cherry stone; many showed opaque whitish dots.	Expelled spontaneously.	. . . . .	"	Slight.	Recovery gradual, but perfect.
Third.	Labor-like.	Considerable.	Considerable mass of hydatids, resembling grapes; no trace of fetus.	Expelled spontaneously,	Usual time.	"	No.	Good recovery.
Not given.	Labor-like	Profuse.	Considerable cluster of hydatids interspersed with clots.	Expelled spontaneously.	. . . . .	Considerable for some hours.	"	Recovery.
Two and a half.	None.	Excessive.	Small mass containing but four cysts.	Manual etraction.	Usual time.	No.	"	Recovery.
Three and a half.	Severe.	Considerable.	Expelled a "large quantity" of vesicles.	Expelled under action of ergot and Barnes's bag.	Usual time.	"	"	Recovery.
Four and a half.	Labor-like.	Free.	Expelled a large mass of hydatids (about two pints), and six or eight hours afterwards a smaller mass.	Manual extraction.	. . . . .	Slight.	Offensive lochia on second day.	Gradual recovery.

HISTORY OF THE PREGNANCY—*Continued.*

Number.	Reporter.	Reference.	Name.	Social State.	Age.	Previous Pregnancies.	Abortions.	Previous Health.	Gastric Symptoms.	General Symptoms.	Pain.	Hemorrhage.	Abdominal Enlargement.
21	Campbell, J. C.	Mich. Med. News., 1880, III, 60.	Mrs. C.	M.	47	12	0	Not noted.	. . . .	. . . . .	Some.	Considerable.	Abdomen size of 6th month of gestation.
22	Chadwick, James R.	Boston M. and S. J., 1887, CXVI, 258.	Mrs. X.	M.	. .	1, 18 mos. before.	0	Good.	Frequent and severe from first bleeding.	. . . . .	. . . .	At 1 month small quantity of watery fluid which recurred in the subsequent four weeks.	At 11 weeks uterus reached one inch above umbilicus.
23	Champlin, A. P.	N. Orl. M. & S. J., 1885, n.s., 273–277.	Mrs. X.	M. 17 years.	33	9	1, at 2 mos.	Not given.	. . . .	. . . . .	. . . .	Considerable during last 5 months.	. . . . .
24	Chowne.	Lancet, November 11, 1843.	. . .	. . .	. .	. . . .	. . .	Not given.	. . . .	. . . . .	. . . .	Not given.	Not given.
25	Chunn, W. P.	Maryland M. J., 1882, –3, IX, 550–552.	Mrs. B.	M.	35	9, youngest four years.	0	Heart-disease for sometime; menstruation regular and without pain.	Nausea and vomiting at short intervals.	Ankles edematous; in bed for four or five days.	Severe.	None until final attack.	At two mos. equal to sixth mo. of gestation; reaching to umbilicus; elastic, doughy.
26	Cleeman, R. A.	Am. Journ. Obst., 1875, VIII, 172–173.	Mrs. X.	M. 21 mos.	16½	1, 10 mos. before.	0	Small, delicate frame; good health after birth of child; hard labor.	None.	Anemic; drowsy	. . . .	At 3½ mos. profuse, and afterwards at frequent intervals.	At 4th mo. size of 7th month of gestation; very sensitive.
27	Cremen, J.	Dublin J. M. Sc., 1858, XXV, 473.	Mrs. E. M.	M.	40	13	1, at 7 mos.	Slight, delicate, cachectic-looking; fell at 3d mo. and struck abdomen.	. . . .	. . . . .	Slight at intervals since fall.	. . . . .	About normal.
28	Crossman, Edward.	British Med. Journ., 1867, II, 24.	Mrs. X.	M.	28	1	0	Not stated.	None.	. . . . .	Slight at intervals.	Commenced at 4th mo.; slight in amount.	Considerable.
29	Curtin, R. G.	Am. J. Obst., 1871–2, IV, 731–736.	Mrs. L. G.	M. 2 years.	23	0	0	Small, delicate, but always healthy; menstruation regular.	Nausea and vomiting from 2d mo.	Rapid and extreme emaciation; edema of feet and legs; anemic; no albumen in urine.	Intermittent between hemorrhages.	Commenced at end of 1st month; yellowish discharge, at times grumous.	At 4th mo. tumor extended above umbilicus; firm to the touch.
30	Davidson, Alexander.	Canada Pract., Toronto, 1885, X, 161.	Mrs. W.	M.	45	Several; youngest five years.	. . .	Menstruation regular.	Constant, severe nausea.	. . . . .	Slight.	During last month constant watery discharge.	Tumor reached one inch above umbilicus.
31	Davis, C. W.	Cin. Lancet-Clinic, 1887, n.s., XVIII, 695.	Mrs. M.	M.	23	0	0	Good; menstruation regular.	. . . .	. . . . .	. . . .	Flow for last month moderate in amount.	Not stated.

HISTORY OF MOLAR BIRTH—*Continued.*

Month of Gestation.	Pain.	Hemorrhage.	Description of Mole.	Treatment.	PUERPERIUM.			Result.
					Days in Bed.	Hemorrhage.	Fever.	
Fifth.	Severe labor-pains.	Severe flooding.	Expelled a mass filling a great bowl, resembling small grapes; size of vesicles shot to large pea: vesicles filled with yellow viscid water; pieces of membrane resembling placental tissue.	Expelled under action of ergot.	. . . . .	No.	No.	Recovery.
Third.	. . . . .	Free.	Expelled a basinful of cysts, blood clots, and chorionic membranes.	Manual extraction.	. . . . .	Slow, but continuous oozing of dark fluid.	Slight for few days; cellulitis one week after birth.	Recovery slow, but good.
Six and a half.	Labor-like.	Considerable.	Weight of mass four and a half pounds; vesicles clear, grape-like; size, pin's head to grape; of pearly clearness; mixed with coagula; piece of placental tissue four inches in diameter; no cord.	Manual extraction.	Usual time.	No.	No.	Good recovery.
Fifth.	Severe, labor-like.	Some.	Expelled large quantity of hydatid cysts, partly enveloped in pieces of membrane resembling decidua.	Expelled spontaneously.	Usual time.	Slight.	"	Recovery.
Two and a half.	Bearing-down.	Terrific.	Expelled a quart of currant-like cystic bodies.	Expelled after passage of sound and use of ergot.	. . . . .	. . . . .	. . . . .	Died of hemorrhage at time of birth.
Fourth.	Labor-like.	Considerable.	Expelled mass larger than full-sized placenta, followed by smaller mass and blood clots.	Manual extraction.	Two weeks.	Slight.	Slight; lochia fetid.	Rapid recovery
Four and a half.	Labor-like.	Moderate.	Expelled small mass containing considerable placental tissue.	Manual extraction.	. . . . .	"	Slight.	Gradual recovery.
Seven and a half,	Slight: labor-like.	Severe.	Two large masses of hydatids filling a chamber-pot; a half hour later another mass half filling the vessel; no fetus or placenta; some pieces of tough white membrane; vesicles transparent in clusters.	Expelled spontaneously.	Usual time.	No.	No.	Good recovery.
Four and a half.	Strong; labor-like.	Profuse.	Expelled large mass of vesicles; on second day removed piece of decidua the size of an orange.	Ergot and compression of uterus above.	Two weeks.	Some.	Slight; very offensive lochia.	Good recovery.
Third.	Labor-like.	Considerable.	Expelled large mass of hydatids; size of mass not given.	Expelled spontaneously.	Usual time.	No.	No.	Good recovery.
Six and a half.	Labor-like.	Some.	Expelled large mass of vesicles.	Expelled spontaneously.	Usual time.	"	"	Speedy recovery.

HISTORY OF THE PREGNANCY—*Continued.*

Number.	Reporter.	Reference.	Name.	Social State.	Age.	Previous Pregnancies.	Abortions.	Previous Health.	Gastric Symptoms.	General Symptoms.	Pain.	Hemorrhage.	Abdominal Enlargement.
32	Davis, J. Hall.	Tr. Ob. Soc., Lond., 1861, Vol. III, 177.	Mrs. X.	M.	33	4	1, at 2d mos.	Not stated.	. . . .	. . . . .	. . . .	Severe flooding for last 3 weeks.	Not stated.
33	Doering, E. J.	Am. J. Obst., 1886, XIX, 512–515.	Mrs. P.	M.	21	1, fifteen mos. before.	0	Slender; general health good; instrumental labor; child ten pounds.	. . . .	. . . . .	None.	Slight hemorrhage at end of 2d mo., soon followed by profuse flow.	Uterus size of four and a half months.
34	Dorland, W. A. N.	UNIV. MED. MAG., May, 1896.	Mrs. D. C.	M.	25	4, youngest 2½ years.	1	Excellent; menstruation regular.	None.	Very weak; emaciated; anemic.	Slight; colicky during last few wks.	Slight bleeding at the ninth week; persisting daily until birth of mole.	Fundus of uterus reached up to the umbilicus.
35	Dulac, L.	Gaz. Hebdom., 1884.	Mrs. X.	M. 18 years.	37	0	0	Good; menstruation regular.	Daily nausea and vomiting after three and a half mos.	Edema of face and ankles; urine loaded with albumen; headache; dyspepsia.	. . . .	Flooding commenced in 2d mo., and recurred frequently.	Not stated.
36	Dunn, W. A.	Boston. M. and S. J., 1885, CXIII, 612.	Mrs. M.	M.	. .	. . . .	. . .	. . . . .	. . . .	. . . . .	. . . .	None.	Uterus size of full term.
37	Edis, A. W.	British Med. Journ., 1871, II, 353.	Miss C. T.	S.	17	0	0	Good.	. . . .	. . . . .	None.	First at 7½ months.	Uterus one and a half inches above umbilicus; no movements nor heart-sounds; soft, doughy.
38	Edwards, Charles.	Lancet, 1847, Vol. I.	Mrs. S. A.	M.	42	7	1, 12 yrs. before.	Biliousteperament; healthy; menstruation regular.	Constant nausea and vomiting after simple food.	Great emaciation; pain in scrobiculus cordis, and in bowels.	Labor-like.	Began at 3d month; a daily stillicidium of blackblood.	Large size.
39	Fifield.	Boston M. and S. J., 1857–8, LVII, 197.	Mrs. B. M. G.	M.	36	6	. . .	. . . . .	Occasional vomiting, finally becoming excessive.	. . . . .	. . . .	Began at 2½ mos.; recurring almost daily; profuse at third month.	Uterus size of 5th mo. of gestation.

HISTORY OF MOLAR BIRTH—*Continued.*

Month of Gestation.	Pain.	Hemorrhage.	Description of Mole.	Treatment.	PUERPERIUM.			Result.
					Days in Bed.	Hemorrhage.	Fever.	
Sixth.	Labor-like,	Consider-able.	Expelled a fetus; placenta entire and appearance healthy; subsequently a mass of hydatids, about one and a half pints; vesicles size of millet seed to a grape; fetus died in a few moments.	Manual extraction.	Usual time.	No.	Slight; lochia offensive.	Recovery good.
Second.	Labor-like.	Consider-able.	Entire mass about the size of a large orange; small vesicles.	Tampon and ergot.	Fifteen days.	Some.	Consider-able.	Good recovery.
Four and a half.	Labor-like.	Profuse.	Mass of hydatids, — over two quarts; no trace of a fetus; one small piece of placental tissue, two inches by two inches, vesicles size from pin head to grape.	Manual extraction.	Two weeks.	No.	Slight for two days; lochia fetid.	Good recovery.
Fifth.	Labor-like.	Severe flooding.	Expelled a mass of hydatids of considerable size, containing a small portion of placental tissue.	Expelled spontaneously.	One month.	"	Slight.	Seventeen days after delivery had an eclamptic seizure with hemiplegia, but made a fair recovery.
Sixth.	Labor-like.	Profuse.	Expelled a large basinful of cysts.	Manual extraction.	Usual time.	"	No.	Good recovery.
Eighth.	Labor-like.	Consider-able.	Expelled a mass of hydatids nearly filling an ordinary hand-basin.	Manual extraction.	Three weeks.	"	"	Good recovery.
Four and a half.	Labor-like.	Consider-able.	Expelled two quarts of hydatids without investing membrane or fetus.	Expelled spontaneously.	Usual time.	"	"	Good recovery.
Fifth.	Labor-like.	Profuse.	Expelled between two and three quarts of cysts.	Tampon.	Two weeks.	Consider-able.	"	Good recovery.

HISTORY OF THE PREGNANCY.—*Continued.*

Number.	Reporter.	Reference.	Name.	Social State.	Age.	Previous Pregnancies.	Abortions.	Previous Health.	Gastric Symptoms.	General Symptoms.	Pain.	Hemorrhage.	Abdominal Enlargement.
40	Fischel.	St. Louis M. and S. J., 1881, XLI, 196.	Mrs. X.	M. 1 yr.	22	0	0	Very delicate.	Nausea and vomiting during last 3 mos.	. . . . .	. . . .	During last 3 months at intervals of two weeks; at times flooding.	Very marked and of rapid development.
41	Foote, John.	M. and S. Reporter, 1860-61, V, 349.	. . .	. . .	25	. . . .	. . .	. . . . .	. . . .	. . . . .	Labor-like for 2 days only.	Profuse during last few days.	Uterus enlarged; had felt movements.
42	Ford, C. M.	Am J. Med. Sc., n. s., Vol. LVI, 1868.	Mrs. S. A., mulatto.	M.	42	13	. . .	Weight 200 pounds; plethoric; menstruation regular.	Constant nausea.	Great exhaustion; faintness.	. . . .	Serum and blood discharge for 2½ mos.	At third month uterus size of fifth month of gestation.
43	Gay, Geo. H.	Boston M. and S. J., Vol LXX, 1864, 138.	Mrs. X.	M.	30	2	0	Menstruation regular.	Severe vomiting th'ghout.	. . . . .	. . . .	Flowing from sixth week.	Considerable.
44	Githens, W. H.	Peoria Med. Monthly, 1880-81, I, 136-38.	B. S.	. . .	19	0	0	Anemic; dysmenorrhea.	Severe.	Great prostration; partially bedridden.	Labor-like.	Repeated after eighth week; profuse.	Marked.
45	Haines.	Dublin J. Med. Sc., 1850, X, 201.	Mrs. X.	M.	33	5	0	. . . . .	None.	. . . . .	None.	Occasional.	Uterus well above pelvic brim.
46	Hehle.	Wien. med. Presse, 1871.	Mrs. M. C.	M.	32	Several.	. . .	Poor.	. . . .	No debility.	None.	Slight; easily arrested.	. . . . .
47	Hewitt, Graily.	Trans. Ob. Soc., London, 1859, Vol. I, 251.	Mrs. X.	M.	24	1, seven mos. before.	0	. . . . .	None.	. . . . .	. . . .	Slight at 6th week; profuse later.	Not marked.
48	Hildebrande.	Monatsch. f. Geburts. u. Frauenkrankh'n, 1860.	Mrs. X.	M.	34	3	1	Typhus fever one year before	. . . .	. . . . .	Severe; cramp-like.	Profuse.	Uterine tumor reached umbilicus.
49	Hooker, Charles.	Boston M. and S. J., Vol. XVI, 1837, 91.	Mrs. C.	M.	26	1, 2 years before.	0	Never good since birth of child; menstruation irregular; serous discharges from vagina.	Nausea and vomiting.	. . . . .	. . . .	Flooding at 3d mo.	Considerable.
50	Hunter, Geo. Y.	Lancet, 1846, Vol. I, 430.	Mrs. B.	M.	23	1	0	. . . . .	. . . .	. . . . .	None.	None.	Much beyond term.
51	Hutchinson.	Lancet, April, 1851.	Mrs. H.	M. 3 yrs.	25	2, youngest 5 mos.	0	Good until beginning of pregnancy (molar).	. . . .	. . . . .	Some; labor-like.	Began at 2½ mos.; recurred at short intervals; at one time lost 1 quart of clotted blood.	Sudden enlargement; more on right side.

HISTORY OF MOLAR BIRTH.—*Continued.*

Month of Gestation.	Pain.	Hemorrhage.	Description of Mole.	Treatment.	Puerperium.			Result.
					Days in Bed.	Hemorrhage.	Fever.	
Sixth	Labor-like.	Consider-able.	Expelled an immense mass of hydatids.	Manual extraction.	Usual time.	No.	No.	Good recovery.
Sixth.	Violent; Labor-like.	Profuse.	Expelled a gallon of transparent cysts; size of cysts, hempseed to walnut.	Manual extraction.	Ten days.	"	"	Good recovery.
Four and a half.	Labor-like.	Flooding.	Expelled one quart of hydatids; three days later expelled three pints more; and twelve days later a piece of decidua.	Tent; spontaneous expulsion.	. . . . .	Some.	"	Good recovery.
Third.	Labor-like.	Some.	Expelled two quarts of cysts and a well-developed fetus of three months; cord normal.	Spontaneous expulsion.	Usual time.	No.	"	Good recovery.
Fourth.	Labor-like.	Profuse.	Expelled immense mass (thousands of vesicles); no trace of fetus or placenta.	Manual extraction.	Two weeks.	"	Slight for 2 days; offensive lochia.	Perfect recovery; again pregnant in 4 months.
Three and a half.	Labor-like.	Consider-able.	Expelled a mass of hydatids, filling a dinner-plate; large fragment of decidua.	Spontaneous expulsion.	Usual time.	"	No.	Good recovery; 12 mos. later gave birth to living child, but died on 10th or 11th day (cause unknown.)
Not given.	Labor-like.	Some.	No description given.	Manual extraction.	Fourteen days.	"	"	Good recovery.
Two and a half.	Labor-like.	Consider-able.	Expelled small mass of small transparent cysts.	Manual extraction.	Usual time.	"	"	Good recovery; 12 mos. later another child.
Six and a half.	Labor-like.	Some.	Expelled mass of hydatids; also a fetus; description not given.	Spontaneous expulsion.	Usual time.	"	Some.	Good recovery.
Third.	Labor-like.	Profuse.	Expelled six or seven pounds of cysts.	Spontaneous expulsion.	Three months.	"	"	Died in 3 mos. of septic pelvic abscess; uterine walls infiltrated with fungous growths.
Term.	Labor-like.	Some.	Child born after two hours' labor, followed by three pints of hydatids, which were attached to placenta as well as to uterus.	Spontaneous expulsion.	Usual time.	Slight.	Moder-ate.	Good recovery.
Three and a half.	Labor-like.	"	Expelled a large quantity of hydatids resembling bunches of grapes; no trace of fetus.	Spontaneous expulsion.	Usual time.	No.	No.	Good recovery.

HISTORY OF THE PREGNANCY.—*Continued.*

Number.	Reporter.	Reference.	Name.	Social State.	Age.	Previous Pregnancies.	Abortions.	Previous Health.	Gastric Symptoms.	General Symptoms.	Pain.	Hemorrhage.	Abdominal Enlargement.
52	Jackson.	Am. J. Med. Sc., n. s., 1853, Vol. XXV, 379.	Mrs. X.	M.	38	8, last stillborn 8 mos. before.	. . .	. . . . .	. . . .	Edema of legs.	. . . .	Slight bloody discharge daily.	Uterine tumor size of full term.
53	Jamieson, Allan.	Lancet, August, 1867.	Mrs. S. E.	M.	27	Last child born 18 mos. before.	. . .	Menses regular.	Nausea and vomiting.	Legs edematous; urine scanty, highly colored, highly albuminous; few hyaline and finely granular casts; anemic; cough.	None.	Colored discharge for last 2 mos.	Uterine tumor reached to umbilicus; placental souffle distinct to left of fundus.
54	Koch.	Zeitschr. f. Wundsartz u. Geburtsh.	Mrs. M.	M.	36	7	0	Frail.	. . . .	. . . . .	None.	Small quantity.	Uterine tumor equal to fifth month.
55	Lewis, E. S.	N. O. Med. and Surg. J., 1881–82, N. S., IX, 401–406.	Mrs. X.	M.	20	1	1, at six mos.	Perfect before marriage.	Frequent nausea and vomiting.	Anemic; anasarca.	. . . .	Began at 3d mo., following severe exertion; profuse; no discharge of cysts.	Uterine tumor size of seventh month; movable, elastic.
56	Macgill, W. D.	Am. J. Med. Sc., 1827, I, 240.	Mrs. W.	M.	40	Several.	. . .	Good.	Nausea and vomiting.	. . . . .	. . . .	Periodic, every 24 hrs., usually in evening, and increasing in am't.	Considerable.
57	Madden, Thos. More.	Dublin Quart. J. M., 1868, XLVI, 290.	Mrs. K.	M.	22	2	0	"	None.	Weak.	None.	For 3 days before a considerable am't of clotted blood.	Uterine tumor normal in size.
58	Ibid.	Ibid.	Mrs. E. F.	M.	53	14, last 8 years before.	0	Menses persisted since birth of last child.	. . . .	. . . . .	Laborlike; with hemorrhage.	For 12 mos. a constant red discharge from vagina; smart hemorrhage 2 w'ks before	Marked.
59	Ibid.	Med. Press and Circ., 1888, n. s., XLVI, 7–10.	Mrs. E. G.	M.	30	9	1, at seven mos., 6 mos. before.	Good.	. . . .	Great exhaustion; anemia.	. . . .	Persistent since miscarriage.	Considerable.
60	Marsh, F. O.	Med. News, 1884, p. 524–528.	Mrs. L. J.	M.	24	1, 20 mos. old.	0	Malarial fever 3½ years before; menstruation at 15; dysmenorrhea before marriage.	Some.	Edema of feet and legs for 2 months; urine loaded with albumen; heartburn; headache; giddiness.	Laborlike.	Began at end of 3d mo.	Uterine tumor extended to umbilicus.
61	Marsh, Jas P.	N. Y. Med. J., 1888, XLVIII, 93–95.	Mrs. X.	M. 4 mos.	24	0	0	Puberty at 15; menses regular before marriage; general health good; fall at 2d mo. of gestation.	Almost uncontrollable vomiting.	Emaciated; very weak; anemic.	Intense paroxysmal.	Occasionally; slight after 2d month.	Rapid; uterus at 4th mo. reached umbilicus; more on left side of abdomen; no heart-sounds.

HISTORY OF MOLAR BIRTH.—*Continued.*

Month of Gestation.	Pain.	Hemorrhage.	Description of Mole.	Treatment.	Puerperium.			Result.
					Days in Bed.	Hemorrhage.	Fever.	
Fourth.	Labor-like.	Profuse.	Expelled five pints of cysts; also fetus of fourth month, a small piece of cord, and an eight-inch fragment of healthy chorion.	Ergot; spontaneous expulsion.	Usual time.	No.	No.	Good recovery.
Eighth.	None.	"	Expelled large quantity of cysts; no trace of fetus; piece of placental tissue size of hand.	Spontaneous expulsion.	Usual time.	"	"	Good recovery.
Third.	Labor-like.	Some.	Description not given.	Manual extraction.	Usual time.	Slight.	"	Good recovery.
Sixth.	Intense; labor-like.	Considerable.	Expelled a chamber-potful of grape-like masses, and firm, dark clots.	Manual extraction.	Two weeks.	"	Sharp (105½°); no uterine tenderness; marked fetor.	Good recovery.
Three and a half.	Labor-like.	Severe.	Expelled mass of hydatids size of fetal head at birth.	Ergot; spontaneous expulsion.	Usual time.	No.	No.	Good recovery.
Fifth.	Labor-like.	Considerable.	Expelled a large basinful of hydatids and fresh clots; size of vesicles, currant to plum.	Spontaneous expulsion.	Usual time.	"	"	Good recovery.
Not known.	Labor-like.	Profuse.	Expelled a mass of hydatids, and two days later a blighted fetus; size of vesicles, pea to grape.	Spontaneous expulsion.	One week.	"	"	Good recovery.
Seventh.	Labor-like.	Considerable.	Expelled mass of hydatids filling small hand-basin; small piece of placental tissue.	Manual extraction.	Usual time.	"	"	Good recovery.
Fifth.	Labor-like.	Some.	Mass of hydatids filled half a large wash-basin.	Digital separation of growth; spontaneous expulsion.	. . . . .	Slight; in form of clots.	Severe, commencing on 4th day; soon developed typhoid state.	Died on 12th day of sepsis.
Four and a half.	Labor-like.	Profuse.	Nearly three pints of cysts of various sizes.	Manual extraction and cureting.	Two weeks.	No.	Slight.	Good recovery

HISTORY OF THE PREGNANCY.—*Continued.*

Number.	Reporter.	Reference.	Name.	Social State.	Age.	Previous Pregnancies.	Abortions.	Previous Health.	Gastric Symptoms.	General Symptoms.	Pain.	Hemorrhage.	Abdominal Enlargement.
62	Maslowsky.	Centralb. f. Gynäkol., No. 16, 1882.	. . .	. . .	21	0	0	Good.	. . . .	Anemic.	Some.	Slight, at intervals.	Considerable; about at umbilicus.
63	Mellor, Thos.	British Med. Journ., 1865, II, 282.	Mrs. W.	M.	25	1, 13 mos. old.	0	"	Nausea and vomiting.	. . . . .	Irregular.	At 3½ mos. slight discharge of blood.	Considerable.
64	Miller, J. P.	Trans. Med. Soc., W. Va., Wheeling, 1879, II, part 4, pp. 488–519.	Mrs. B.	M.	17	0	0	Menstruation regular; dysmenorrhea.	Constant nausea and vomiting.	Edema of feet; night-sweats; cough; bed-ridden.	Slight.	At 6th week, at first slight; in a few days free; at 10th week escape of piece of decidua (?).	Considerable; cystic, soft, doughy.
65	Moore, C. F.	Dublin Quart. J. Med. Sc., 1868, XLV, 473.	Mrs. J. R.	M.	50	10, last 10 years before.	0	Menses regular; ceased 2 years before, but show every 7 to 8 weeks since.	Frequent bilious vomiting for 2 mos.	Giddiness; debility.	Some.	Constant and bloody, at times offensive; discharge lasting 2 mos.	Some.
66	Moorehead, J.	Lancet, 1863, Vol. I, 305.	Mrs. G.	M.	50	7, sterile for past twenty years.	3	Naturally stout; menstruation regular up to 2 mos. before first visit.	Nausea and vomiting.	Anemic; somewhat emaciated.	Some.	Began after a mental shock at 1½ mos.; sanguineous discharge and clots; later watery and bloody.	Globular tumor size of child's head, extending to umbilicus.
67	Morris, J. M.	Boston M. J., 1845, XXXII, 17.	Mrs. C.	M.	. .	3	0	Sanguine temperament; fine constitution; fell at 1½ mos. of pregnancy.	. . . .	. . . . .	Severe; occasional.	Began at 4th mo.; bloody and at times brownish discharge.	Considerable; never felt movements.
68	Ibid.	Ibid.	Mrs. W.	M.	32	6	. . .	Delicate form.	. . . .	Pain in chest; signs of tuberculosis.	. . . .	. . . . .	. . . . .
69	Moses, S. G.	St. Louis Cour. Med., 1879, I, 104–107.	Mrs. X.	M.	.	. . . .	. . .	. . . . .	. . . .	Marked nervous manifestations.	. . . .	. . . . .	Enormous; at 6 mos. much larger than uterus at term.
70	Munde, Paul F.	Am. Journ. Obst., 1874–75, VII, 475.	Mrs. G.	M.	44	10	0	Always good.	Severe vomiting.	General malaise.	. . . .	Severe in 2d month.	Uterus reached above umbilicus; size of seventh month, broad, doughy, irregular contractions; no fetal movements.
71	Mundell, J. H.	J. Am. Med. Associa'n, 1888, XI, 592.	Mrs. L. T.	M.	19	0	0	. . . . .	Nausea and vomiting after 1½ mos.	Weak.	. . . .	Slight after 2d month.	Uterus reached umbilicus; hard, symmetrical.

HISTORY OF MOLAR BIRTH.—*Continued.*

Month of Gestation.	Pain.	Hemorrhage.	Description of Mole.	Treatment.	PUERPERIUM.			Result.
					Days in Bed.	Hemorrhage.	Fever.	
Four and a half.	Labor-like.	Some.	Description not given.	Spontaneous expulsion.	Usual time.	No.	No.	Good recovery.
Four and a half.	Labor-like.	Consider-able.	Mass of cysts and coagula; vesicles size of grape and less; no vestige of embryo.	Spontaneous expulsion.	Usual time.	Slight.	"	Good recovery.
Fourth.	Consider-able.	Terrific.	Mass of cysts weighed between two and three pounds; vesicles white; in size from small cherry to large plum; contained a watery fluid.	Manual extraction.	Five weeks.	Consider-able at intervals for 1 mo.	Fetid lochia.	Retarded recovery.
Three and a half.	Severe.	Consider-able.	Mass of hydatids size of pin's head to grape, of a beautiful pink color; size of mass, one and a half fetal head.	Spontaneous expulsion.	Usual time.	No.	No.	Good recovery.
Two and a half.	Severe; labor-like.	Some.	Vesicular masses nearly filled half a wash-basin; size of vesicles, currant, a few larger.	Spontaneous expulsion.	Usual time.	"	"	Good recovery.
Sixth.	Labor-like.	"	Weight of hydatids about four pounds; size of cysts, pin's head to hazel-nut.	Spontaneous expulsion.	Usual time.	"	Slight fetid lochia.	Good recovery.
Eight and a half.	Labor-like.	"	Weight of hydatids six or seven pounds; size of cysts, mustard seed to large filbert.	Spontaneous expulsion.	Few weeks.	"	Slight.	Gradual but complete recovery.
Sixth.	Labor-like.	Consider-able.	Mass of hydatids filled an ordinary bucket.	Manual extraction.	. . . . .	"	"	Gradual recovery.
Fourth.	Violent; labor-like.	Some.	Large quantity of vesicles mingled with coagula and shreds of membranes, and placental tissue; size of vesicles, currants; mass expelled, size of two fists.	Tampon; ergot; spontaneous expulsion.	. . . . .	"	No.	Slow recovery.
Third.	Labor-like.	"	Large quantity of cysts.	Tampon; manual extraction.	. . . . .	"	Slight.	Slow recovery.

HISTORY OF THE PREGNANCY.—*Continued.*

Number.	Reporter.	Reference.	Name.	Social State.	Age.	Previous Pregnancies.	Abortions.	Previous Health.	Gastric Symptoms.	General Symptoms.	Pain.	Hemorrhage.	Abdominal Enlargement.
72	Murphy, P. J.	Obst. Gaz., Cincin., 1880-81, III, 114-116.	Mrs. L. N., colored.	M.	29	6	2	Never strong; puberty at 18.	Constant nausea and vomiting.	Edema of feet; anemia.	. . . .	Severe at irregular intervals after 2d month; profuse at 6th month.	Rapid; at 2d mo. size of 6th mo. of gestation.
73	Oliver, James.	Lancet, Sep. 21, 1889, p. 592.	Mrs. A. T.	M. 7 yrs.	25	5, last 2 years.	0	Puberty at 14; menses always lasted 7 days.	Nausea and vomiting.	Edema of legs; anemic.	Colicky.	More or less daily for 11 weeks.	Tumor reached one inch above umbilicus.
74	Parish, W. H.	Trans. Ob. Soc., Philadelphia.	Mrs. C.	M.	30	3	0	Generally poor.	. . . .	Exhaustion; bedridden.	. . . .	Slight.	Tumor reached above umbilicus; bilobed with vertical median furrow; regular uterine contractions.
75	Phillips, John.	Trans. Ob. Soc., London, Vol. XXXII, 1890, p. 63.	Mrs. X.	M.	42	Several.	. . .	. . . . .	. . . .	Edema of feet and legs and hands; no albumen in urine.	. . .	Incessant flooding for 3 weeks.	Uterus two inches above umbilicus; no fetal heart-sounds.
76	Poole.	Dublin J. Med. Sc., 1881, 3 s., LXXI, 423-426.	Mrs. X.	M.	27	3	0	Poor.	Constant nausea and vomiting.	Extreme debility; in bed 1 mo.	None.	Commenced at fifteenth week.	At 4th mo. tumor equal to 6th mo. of gestation; resisting.
77	Ibid.	Ibid.	Mrs. X.	M.	26	3	0	Good.	Irritable stomach.	Emaciated.	None.	Commenced at 4th mo.; at first coffee-grounds, later free blood.	Rapid and considerable.
78	Putnam.	Am. Journ. Med. Soc., 1850, n. s., XX, 37.	Mrs. X.	M.	Young.	Several.	. . .	Menstruation regular.	. . . .	. . . . .	Some.	Began at middle of 4th mo; slight at first, gradually increasing.	Considerable.
79	Rooker, Jas. I.	Boston M. and S. J., 1868-69, LXXIX, 216.	Mrs. W.	M. 6 mos.	. .	0	0	. . . . .	Nausea and vomiting.	Anemic.	. . . .	. . . . .	Gradual.
80	Routh.	Lancet, 1860, I, 597.	Mrs. B.	M.	35	1	0	. . . . .	. . . .	. . . . .	. . . .	Constant.	Considerable.
81	Sackett, S. P.	Obst. Gaz., Cincin., 1881-82, IV, 174-76.	. . .	. . .	23	0	0	Always good; menstruation regular.	Nausea and vomiting.	Exhaustion; faintness; emaciation.	Slight.	Began at 4th mo.; slight in amount.	Considerable.
82	Schütz.	Zeitschr. f. Wundsartz u. Geburtsh.	Mrs. B. W.	M.	30	6	0	Good.	. . . .	None.	None.	Profuse.	Considerable.
83	Shattuck, Geo. B.	Boston M. and S. J., 1888, CXIX, 10.	Miss S. C.	S.	37	0	0	"	Nausea and vomiting for 6 w'ks.	. . . . .	. . . .	Slight in 8th week.	Tumor reached umbilicus; no bruit.

HISTORY OF MOLAR BIRTH.—*Continued.*

Month of Gestation.	Pain.	Hemorrhage.	Description of Mole.	Treatment.	PUERPERIUM.			Result.
					Days in Bed.	Hemorrhage.	Fever.	
Sixth.	Considerable.	Profuse.	Large mass of hydatids; two and three-fifths pounds; vesicles size of pin's head to grape.	Ergot; spontaneous expulsion.	. . . . .	No.	Slight for 3 to 4 days.	Good recovery.
Four and a half.	Some.	Considerable.	Weight of mass, two pounds.	Spontaneous expulsion.	Usual time.	"	No.	Good recovery.
Three and a half.	None.	Slight.	Mass removed size of fetal head at term; no placenta; no fetus.	Manual extraction.	. . . . .	Some.	"	Slow recovery.
Fourth.	Labor-like.	Some.	Large mass of vesicles; no trace of fetus.	Manual extraction.	Usual time.	No.	"	Recovery.
Fourth.	Labor-like.	Slight.	Expelled three pints of vesicles, resembling boiled sago, mixed with clotted blood; no decidua.	Spontaneous expulsion.	Two weeks.	"	"	Good recovery.
Fourth.	Labor-like.	Some.	Mass of cysts; vesicles quite large, some size of plum; shreds of decidua.	Spontaneous expulsion.	Two weeks.	"	"	Good recovery.
Four and a half.	Labor-like.	"	Mass more than filled a half-pint bowl; size of vesicles, pin's head to half an inch in diameter; no fetus; but decidua distinct.	Spontaneous expulsion.	. . . . .	Some.	"	Slow but good recovery.
Five and a half.	Labor-like.	Profuse.	Mass weighed about five pounds; vesicles size of pin's head to large grape.	Manual extraction.	Usual time.	No.	"	Slow but good recovery.
Two and a half.	Labor-like.	Considerable.	Large number of cysts, pinkish in color, and containing an albuminous fluid, of acid reaction.	Spontaneous expulsion.	Usual time.	"	"	Good recovery.
Four and a half.	Labor-like.	Free.	Considerable quantity of vesicles.	Manual extraction.	Two weeks.	"	Slight.	Slow but steady recovery.
Five and a half.	Labor-like.	Some.	No description given.	Spontaneous expulsion.	Three weeks.	"	No.	Good recovery.
Three and a half.	Labor-like.	Slight.	Mass filled one-third of a pail; cysts and clots.	Manual extraction.	Usual time.	"	"	Good recovery.

HISTORY OF THE PREGNANCY.—*Continued.*

Number.	Reporter.	Reference.	Name.	Social State.	Age.	Previous Pregnancies.	Abortions.	Previous Health.	Gastric Symptoms.	General Symptoms.	Pain.	Hemorrhage.	Abdominal Enlargement.
84	Shewen, Alfred.	British Med. Journ., 1875, II, 101.	Mrs. X.	M. 28 years.	53	10	1	. . . . .	Nausea and vomiting.	Great debility; anorexia; pain in back and limbs.	Severe.	For 2 months gushes of pale, foul, watery fluid.	Uterus as large as fetal head.
85	Smith, Thos. C.	J. Am. Med. Associa'n, 1887, IX, 686.	Mrs. F.	M.	20	0	0	. . . . .	Nausea and vomiting.	Anemic.	. . . .	Began at 4th month.	Uterus reached to umbilicus; hard.
86	Ibid.	Ibid.	Mrs. X.	M.	Young.	2	0	. . . . .	. . . .	"	. . . .	. . . . .	Considerable.
87	Smyth, Spencer T.	British M. J., 1873, I, 61.	Miss S. G. T.	S.	13	0	0	Plethoric habit; puberty at 13; menses regular.	Occasional nausea.	"	Violent.	Severe flooding 1 week before birth.	Uterus size of third month.
88	Thomas, Hugh.	British Med. J., 1883, Vol. I, 911.	Mrs. X.	M.	26	. . . .	. . .	. . . . .	. . . .	Marked jaundice.	Some.	. . . . .	Great.
89	Thompson, B. S.	Proc. Con. Med. Soc., 1880, n. s., II, 60-69.	Mrs. B. F.	M.	30	3	0	Good.	None.	. . . . .	. . . .	Slight blood and water after 1st month.	. . . . .
90	Underhill.	Am. J. Ob., 1879, XII, 185.	Mrs. T. H.	M. 4 yrs.	24	2	0	Scrofulous diathesis; nervous.	. . . .	Anemic; despondent.	. . . .	Began at two mos., slight; later profuse.	Greater than term; tense, doughy.
91	Van Dyke, A.	M. and S. Rep., 1883, XLIX, 10.	Mrs. K.	M	25	0	0	. . . . .	Occasional vomiting.	Anemic; giddy.	. . . .	Some.	Uterus size of 6 mos.
92	Verrier, E.	Gaz. hebdom., Dec. 7, 1883.	Mrs. X.	M.	21	0	0	Good; sudden mental shock.	. . . .	Urine highly albuminous.	. . . .	At 4th month after shock and at irregular intervals after.	Not given.
93	Ibid.	Ibid.	. . .	. . .	. .	. . . . .	. . .	Mental shock at 4th mo.	. . . .	No albumen in urine.	Colic after 4th mo.	Began at 4th mo., continued for over 45 days.	Not given.
94	Ibid.	Ibid.	Mrs. X.	M.	45	. . . .	. . .	. . . . .	Persistent nausea and vomiting.	. . . . .	. . . .	Not stated.	Not given.
95	Wearne, J.	Lancet, 1893, Vol. II, 141-42.	Mrs. M. C.	M.	36	0	0	. . . . .	Occasional vomiting.	Anemic; great exhaustion; edema of feet.	Some.	Commenced in 3d mo.; free discharge.	Great tumor; inelastic.
96	Wells, Daniel E.	Boston M. and S. J., 1866-67, LXXV, 321.	Mrs. M.	M.	21	1, 15 mos. old.	0	. . . . .	. . . .	. . . . .	. . . .	Flow for several weeks.	Uterus size of seventh month; irregular; very hard.
97	Wilton, Wm.	Lancet, London, Vol. I.	Mrs. M.	M.	37	4	1	Menstruation regular; infection of bowels since last child.	Nausea and vomiting.	. . . . .	Constant.	Frequent and severe, with gushes of watery fluid.	Great.
98	Winn.	Lancet, London, 1855, Vol. I, 214.	Mrs. X.	M.	. .	. . . . .	. . .	. . . . .	. . . .	. . . . .	. . . .	. . . . .	Great.

HISTORY OF MOLAR BIRTH.—*Continued.*

Month of Gestation.	Pain.	Hemorrhage.	Description of Mole.	Treatment.	Puerperium.			Result.
					Days in Bed.	Hemorrhage.	Fever.	
Fifth.	Labor-like.	Slight.	Chamberful of "bladdery, sea-weedy" material; vesicles size of pea to hazel-nut; no fetus; three years before had discharged the same.	Spontaneous expulsion.	Usual time.	No.	No.	Good recovery.
Fourth.	Severe.	Profuse.	About a quart of cysts, size of currants and grapes.	Manual extraction.	Usual time.	"	"	Good recovery.
Three and a half.	"	"	Half a gallon of cystic bodies.	Manual extraction.	Usual time.	"	"	Good recovery.
Third.	Labor-like.	Some.	Mass of hydatids, size not given; no embryo.	Spontaneous expulsion.	Usual time.	"	"	Good recovery.
Not given.	Labor-like.	"	Weight of mass of hydatids, three and three-quarters pounds.	Spontaneous expulsion.	Usual time.	"	"	Rapid recovery.
Four and half.	Labor-like.	Consider-able.	Large basinful of cysts; no fetus.	Spontaneous expulsion.	Usual time.	"	"	Good recovery.
Third.	Labor-like.	Some.	Two quarts of vesicles.	Manual extraction.	Five months.	Free.	Consider-able.	Tedious convalescence, but good recovery.
Fourth.	Labor-like.	Consider-able.	Three quarts of cysts and clots.	Ergot; spontaneous expulsion.	. . . . .	No.	Some.	Slow recovery.
Five and a half.	Labor-like.	Moder-ate.	Mass of cysts; no trace of fetus or placenta.	Spontaneous expulsion.	. . . . .	. . . . .	Yes.	Died six weeks after delivery, of sepsis.
Five and a half.	Labor-like.	Moder-ate.	Mass of cysts; about one-eighth of normal placenta remained.	Spontaneous expulsion.	Usual time.	Slight.	No.	Good recovery.
Five and a half.	Labor-like.	Some.	Mass of cysts.	Spontaneous expulsion.	Usual time.	No.	"	Good recovery.
Third.	Labor-like.	"	Four or five quarts of hydatids expelled.	Spontaneous expulsion.	Usual time.	"	"	Good recovery.
Fourth.	Consider-able.	Profuse flood-ing.	Chamber-pot two-thirds full; size of cysts from large shot to inch in diameter; no fetus or placenta.	Manual extraction.	Usual time.	"	"	Good recovery.
Three and a half.	Labor-like.	Consider-able.	Large mass found after death in uterine cavity; mass of cysts expelled.	Spontaneous expulsion.	. . . . .	"	"	Died of uterine rupture; masses of cysts embedded in wall.
Sixth.	Labor-like.	Profuse.	Great mass of hydatids and clots.	Spontaneous expulsion.	. . . . .	. . . . .	. . . . .	Died of uterine rupture; ragged ulcer size of shilling in upper anterior wall.

HISTORY OF THE PREGNANCY.—*Concluded.*

Number.	Reporter.	Reference.	Name.	Social State.	Age.	Previous Pregnancies.	Abortions.	Previous Health.	Gastric Symptoms.	General Symptoms.	Pain.	Hemorrhage.	Abdominal Enlargement.
99	Woodman, W. B.	Trans. Ob. Soc., London, 1865.	Miss E. H.	S.	24	0	0	. . . . .	. . . .	General anasarca; pulmonary edema; urine scanty; enormous am't of albumen; few casts.	. . . .	Constant flowing from 1½ months.	Size of tumor equal to seventh month of gestation.
100	Ibid.	Ibid.	Mrs. M. K.	M.	36	4	1	. . . . .	. . . .	General anasarca; urine scanty, albuminous; no casts.	. . . .	Some for last week.	Enormous.

SUPERNUMERARY BREASTS.

BY BARTON COOKE HIRST, M.D.,

Professor of Obstetrics in the University of Pennsylvania.

SUPERNUMERARY breasts and nipples are more common than is generally supposed. Bruce found sixty instances in 3956 persons examined (1.56 per cent.). Leichtenstern places the frequency at one in 500. Both observers declare that men present the anomaly about twice as frequently as women. It is impossible to account for the accessory glands on the theory of reversion, as they occur with no regularity in situation, but may develop at odd places on the body. The most frequent position is on the pectoral surface below the true mamma and somewhat nearer the middle line; but an accessory gland has been observed on the left shoulder over the prominence of the deltoid; on the abdominal surface below the costal cartilages; above the umbilicus; in the axilla; in the groin; on the dorsal surface; on the labium majus; and on the outer aspect of the left thigh. In cases reported by Edwards[1] and Handyside, and in the instance about to be reported by the writer, heredity seems to have been a probable explanation for the development of the supernumerary mammæ; but in the vast majority of cases no hereditary influence can be traced.

[1] Medical News, March 6, 1886 (good bibliography).

Supernumerary Breasts.

HISTORY OF MOLAR BIRTH.—*Concluded.*

Month of Gestation.	Pain.	Hemorrhage.	Description of Mole.	Treatment.	PUERPERIUM.			Result.
					Days in Bed.	Hemorrhage.	Fever.	
Three and a half.	Labor-like.	Flooding.	Three to four pounds of hydatids; size of vesicles, pin's head to grape.	Spontaneous expulsion.	. . . . .	. . . . .	Yes.	Died on third day, of sepsis.
Six and a half.	Labor-like.	Profuse.	Two to three pounds of hydatids; size of vesicles, pin's head to gooseberry; some degenerated spongy placental tissue.	Spontaneous expulsion.	Usual time.	No.	No.	Good recovery.

Ahlfeld[1] explains the presence of mammæ on odd parts of the body by the theory that portions of the embryonal material entering into the composition of the mammary gland are carried to and implanted upon any portion of the exterior of the body by means of the amnion.

The woman whose picture accompanies this report, and whom I was permitted to examine through the courtesy of her physician, Dr. D. E. Kercher, is remarkable for the unprecedented number of breasts and nipples that she possesses. She has nine mammæ all told, and as many nipples. The two normal glands are very large. Two accessory glands and nipples below them are small and do not excrete milk. All the other glands and nipples give milk in large quantities. The nipple of the gland in the left axilla is not shown very plainly in the illustration on account of its situation, and it is not easy to see it in the woman herself, concealed as it is by the axillary hair, but when the corresponding gland in the axilla is compressed a stream of milk may be projected several feet from the woman's body.

As may be seen in the accompanying illustration, the glands are arranged with some symmetry. There are five on the left and four on the right side.

The woman is a negress, 19 years old, and a IV-para. Her child was born prematurely. Her mother has an accessory mamma on the abdomen that secretes milk during the period of lactation.

[1] Missbildungen der Menschen.

A CASE OF CASTRATION FOR THE RELIEF OF OBSTRUCTIVE SYMPTOMS CAUSED BY PROSTATIC ENLARGEMENT.

By Edward Martin, M.D.,

Clinical Professor of Genito-Urinary Surgery, University of Pennsylvania; Surgeon to St. Agnes's, Howard, and Philadelphia Hospitals.

In the early part of November, 1894, I was consulted by Dr. William Reisert as to the advisability of operating upon a case of urinary retention due to prostatic enlargement. Dr. Reisert's patient was 68 years old, a shoemaker by trade. His history was as follows:

He never suffered from venereal disease; married at 21; was always a moderate liver. Fifteen years ago he noticed some undue frequency of urination. The first sign of this was the necessity for rising early in the morning to empty the bladder. For some time he was compelled to rise once or twice during the night, and during the morning hours would urinate eight or ten times. In the afternoon he was more comfortable. This frequent urination was at first painless, but it gradually became painful, so that at times he would have to scream out. Pain was felt particularly at the end of urination, and would sometimes last for hours with but slight intermission between the acts. About this time he noticed some dribbling. From the onset of his symptoms his stream lost its force, dropping directly to his feet. The symptoms above detailed were slowly progressive until finally he was compelled to rise twenty times during the night, and in an ordinary walk through the city would have to stop in every alley-way. The pain became steadily more severe, the frequency of urination more marked until three months before I saw him, when for the first time he began to fail in general health and strength. About October 1 there was complete retention preceded by several days of constant dribbling. The patient was catheterized, and four pints of urine was drawn off. The catheterization had then to be continued four times daily, the patient being entirely unable to pass any water. The passage of the catheter became increasingly difficult and painful, apparently because of spasm of the compressor urethræ muscle, since after the introduction of a sound the soft instrument would slip in easily. From the beginning of October there was rapid failure in strength and steady emaciation. The patient fell into a low delirious state, the urine, ammoniacal and offensive for years, became even more foul than before, the quantity was markedly

diminished, and all symptoms suggested a rapidly fatal termination of the case.

When I first saw this patient he had a temperature of 101° F., a weak, hurried pulse of 110, the torpid mental condition of pronounced uremia. His urethra was extremely sensitive, his prostate, felt through the rectum, was the size of half a small orange. His urine was putrid and loaded with muco-pus.

His condition was such that a prolonged operation, or one involving the loss of much blood, or implying considerable shock, could not be seriously considered. The circumstances of the case were such that but two methods of intervention were suggested: the one cystotomy, the other castration. The latter method was chosen mainly because it gave promise of permanent cure should the patient survive a few days.

On November 9 ether was administered to the first stage, less than three ounces being required, the testicles were freed, the cords ligated high up with silk, and the glands removed. The whole operation did not take more than eight minutes. There was no perceptible shock, nor was there marked surgical reaction.

The subsequent history of the wounds is of interest as suggesting a slight modification in the technique of castration. Healing was by primary intention. When the patient left St. Agnes's Hospital ten days later, there was no sign of inflammation about either incision. Five days after being up and about in his house there was noticed some swelling in the left groin. Within the next four days this developed into an abscess which burst, leaving a sinus from which the silk ligature was finally discharged. Exactly the same complication occurred in the other groin two weeks later. It is possible that these abscesses may have been caused by the silk. It had, however, been subjected to fractional sterilization, and the same silk used in other operations had given no trouble. It is more probable that there had been a catarrhal inflammation extending along the vas; that the cut extremity of this body infected the region about the silk ligature; that this infection would not have been sufficient to produce an abscess had not the silk been present as a foreign body; but that aided by the presence of this foreign body a deep abscess was formed which finally reached the surface in the above way. In future operations involving the continuity of the vas I expect to cauterize the mucous surface of this cord exactly as is customary after tying off the appendix.

The history of this patient after operation is as follows:

While still under ether and during the unconscious struggles of recovery, he voided about three ounces of urine. The days following

operation the amounts of urine drawn by catheter and passed are given in the following chart:

November. 1894.	Urine.		
	Hours.	Taken by Catheter.	Passed Spontaneously.
9	1 P.M. 6 " 12 M.N.	8 f ℥ 16 "	
10	6 A.M. 12 NOON. 6 P.M. 12 M.N.	19 f ℥ 14 " 16 " 19 "	
11	6 A.M. 12 NOON. 6 P.M. 12 M.N.	15 f ℥ 18 " 14 " 19 "	
12	6 A.M. 12 NOON. 6 P.M. 12 M.N.	17 f ℥ 17 " 16 " 19 "	
13	6 A.M. 12 NOON. 6 P.M. 12 M.N.	22 f ℥ 16 " 21 " 23 "	3 f ℥.
14	6 A.M. 12 NOON. 6 P.M. 12 M.N.	20 f ℥ 17 " 20 " 20 "	4 A.M. 4 f ℥.
15	6 A.M. 12 NOON. 6 P.M. 12 M.N.	24 f ℥ 16 " 27 " 25 "	2 A.M. 5 f ℥. 6 A.M. 5 f ℥.
16	6 A.M. 22 NOON. 6 P.M. 12 M.N.	21 f ℥ 18 " 23 " 20 "	3 A.M. 4 f ℥.
17	6 A.M. 12 NOON. 6 P.M. 12 M.N.	25 f ℥ 21 " 28 " 35 "	3 A.M. 5 f ℥.
18	6 A.M. 12 NOON. 6 P.M. 12 M.N.	34 f ℥ 19 " 16 " 20 "	3 A.M. 7 f ℥. 3 P.M. 10 " 10 P.M. 12 "
19			2 A.M. 13 f ℥. 6 A.M. 4 " 8 A.M. 12 "

November 19 he was discharged in very much better shape as far as his general health was concerned than when he came into the hospital. November 21 he reported that he was doing well, and that he had had to use the catheter once since leaving the hospital. November 25 he was passing his water six or eight times a day, and

rising about the same number of times at night. His appetite had improved, and he was rapidly gaining flesh and strength. November 30 he had a most uncomfortable night. Did not sleep on account of pain in his bladder and his water dribbled from him during the entire night. Two days later he was perfectly comfortable, passing his water freely and easily.

During all this time his urine was still ammoniacal, turbid, and extremely offensive. December 10, Dr. Reisert reported to me that an examination of his prostate showed that it was much shrunken; that he passed all his water, not requiring the use of a catheter; that though at times he has some pain generally he is perfectly comfortable; and that he reports that his stream comes as freely as it did twenty years ago.

December 19, at Dr. Reisert's request, he stopped at my office. He reported that he still rose six times during the night, but that his water came freely and without pain or irrigation. Some nights he rose only thrice. During the day he passed his water four or five times. I had him urinate in glasses and found that his urine was acid, not offensive, but contained a very large quantity of pus, being markedly turbid. The passage of a catheter showed about one ounce of residual urine and pus. The stream he passed was large and forcible. There was no dribbling in his clothes. He seemed strong and well, and reported that he had gained many pounds.

Examination of his prostate showed in place of the half-orange-like projection into the rectum, a flattened, scarcely perceptible mass, feeling much like a heart-shaped piece of wet sole-leather. The diminution in size seemed to be almost entirely in thickness, the breadth and length of the prostate being about the same as before.

On January 21 he again visited my office. He reported that he was rising two or three times at night; that he urinated without any delay or pain and passed a full stream. He reiterated the statement that he urinated exactly as he did when a boy. In regard to his sexual powers, he stated that he had had no erection for a year before the operation, had had none since, and had no desire. The urethral length was eight inches, the urine was purulent, turbid, acid, and of low specific gravity (10 to 12). The last few drops were made up of nearly pure pus. This patient again visited me on June 17 of this year. He stated that he had to rise but twice during the night to pass water; that the stream came promptly and of full size and force; and that he urinated four times a day, and can direct a forcible stream as in his youth. The urine which he passed was absolutely clear and free of pus. There was no residual urine. His long-standing cystitis

was evidently entirely cured. This was, perhaps, the most surprising feature of his case.

Examination of his prostate showed that it was distinctly thicker than at the last visit. I should, perhaps, have classed it as normal in size had I known nothing of his history.

August 9 this patient again called and stated that his condition was unchanged.

After operation this patient's temperature ranged between 99° to 100° F. for four days, then sank to normal. There was no antiseptic treatment of his bladder either locally, by injection, or by the mouth. The only medicines administered were whiskey in full doses, Rochelle salts, and calomel as required and strychnine. He complained of great pain in the penis for several days and was unable to sleep, this being simply a continuation of the symptoms which existed before operation. After the sixth day he slept soundly and the pain steadily grew less until it disappeared entirely.

Microscopical examination of the removed testes showed that they had never been subjected to inflammatory lesions; that the glandular secreting substance was healthy; that there was a slight increase in thickness of connective tissue incident to the man's age, and that the vas was patulous.

March 10, 1895, sixteen months after operation, I again saw the man. He urinated normally once or twice during the night, six times during the day; there was no pus in his urine. He expresses himself as being entirely well.

Bacteria in School-Rooms.

In a recent communication to the Hamburg Medical Society, M. Ruete details the results of his bacteriologic examination of the air of school-rooms. He made use of Hueppe's method and made his investigations at 2.30 o'clock in the afternoons. While these were always made under the same conditions, the results were very variable. He found a minimum of 1500 bacteria to the cubic metre, a maximum of 3,000,000 and a mean of 268,000. Analogous researches gave Hesse an average of only 9500. Among the bacteria observed, the author calls attention (*Bulletin Médical de Paris*) to a motile bacillus which does not develop on agar, but on gelatin plaques gives rise to circular colonies with crenated edges; it can also be cultivated on milk and potato; pure cultures kill mice in twenty-four hours and their blood is rapidly fatal to guinea-pigs. Ruete has been able to extract toxins from the blood of animals thus killed.—*Journal of the American Medical Association.*

CASES OF ARTIFICIAL ANUS AND FECAL FISTULE TREATED BY INTRAPERITONEAL OPERATION.

By John B. Roberts, M.D.,

Philadelphia.

Intestinal Resection for Artificial Anus.

A man, aged 67, was admitted to the Methodist Hospital on November 21, 1895, with strangulated inguinal hernia of the right side. He had suffered from this hernia for about forty years, and it had previously been operated upon twice because of the occurrence of strangulation.

Upon examination it was found that he had a small hernia on the left side and a large inguino-scrotal hernia of the right side which was strangulated. I promptly cut down upon the hernia, relieved the strangulation, and did an operation for the radical cure by the method of Bassini. The hernia consisted of the entire cecum, which showed a dimple-like depression at one point, evidently representing the appendix, which was congenitally absent. Subsequent investigation from the surgeons, who had operated upon him previously, proved that his appendix had never been removed, and that his case was therefore one of congenital absence of the organ. There were a good many old adhesions uniting the coils of intestine in the neighborhood of the cecum.

The patient showed very little shock after the operation, and did well for one day, when his abdomen became somewhat tympanitic and painful. The next day the pain and tympany had increased, and vomiting occurred, when attempts were made to have his bowels moved by sodium phosphate. I determined to make an incision in the median line because it was evident that there was an obstruction in the intestinal canal.

Active peritonitis was present and a portion of the small intestine just above the ileo-cecal valve was found to be dark in color, as if it had just been pulled from some encircling constriction. It was very evident that this portion of intestine, which was about two inches long, had been strangulated by being entangled in some of the twisted masses of adherent coils resulting from the previous attacks of inflammation.

This bowel was so dark and the activity of the peritoneal inflammation so great that I made an incision into it and allowed a large

[1] Read before the Philadelphia County Medical Society, March 25, 1896.

quantity of feces and gas to be expelled. Being afraid to put this dark and gangrenous-looking bowel into the abdomen, I stitched the knuckle of intestine to the centre of the incision. The opening through which I had permitted the evacuation of feces was pinched shut with a hemostatic forceps, and the wound above and below the protruding bowel closed with sutures. Before doing this I also punctured the intestines within the abdomen in another place with the aspirating needle, to allow the escape of gas, and closed the opening with sutures. After the intestine had been stitched to the abdominal wall I found that it had regained its normal color. This showed that the gut would probably not have become gangrenous at this point, and could have been returned, though it is questionable whether such a proceeding would have been wise when the distention and violence of the peritoneal inflammation were so great.

Inflammation of the belly wall around the protruding knuckle of bowel took place and an abscess formed in connection with some of the stitches. After the tympany and active signs of intra-abdominal inflammation had subsided I endeavored to close with sutures the opening which had been made in the protruding portion of bowel. Two attempts were made to do this, but both of them failed because gas and feces forced their way through the opening, notwithstanding the presence of the sutures. The final result, therefore, was the production of an artificial anus in the intestine left stitched in the incision.

The anterior surface of the abdomen became the seat of a very painful and extensive eczema which caused the patient much pain, and gave us a great deal of annoyance. On January 11, 1896, I operated for the cure of artificial anus, although I thought the operation was likely to be much complicated by the difficulty of preventing infection from the eczematous skin.

Incision was made above and below the opening in the bowel; this was then detached from the abdominal wall and recent incisions of neighboring portions of intestine separated. During this stage of the operation my finger tore the bowel just above the artificial anus. Four inches of gut, which included this tear and the abnormal anus, were then resected and a circular suture of the intestine made with two rows of Lembert sutures of silk. No portion of the mesentery was removed, but the portion corresponding to the removed bowel was folded. A drainage-tube was introduced because of the probability of infection and the wound closed. The subsequent history of the case was unimportant, though there was some suppuration about the stitches, one or two of which were subjected to great tension because of the retraction of the belly wall at the seat of the

artificial anus. The patient recovered without special symptoms worthy of record.

Fecal Fistules resulting from Sloughing Hernia cured by Celiotomy and Intestinal Suture.

A woman, over 60 years of age, had been operated upon several years previously for strangulated femoral hernia on the right side. On examination at the Woman's Hospital I found a minute orifice in the right groin, from which a small amount of liquid feces escaped more or less continuously. The tissues around were irritated by the escaping fluid. The opening would only admit the end of a probe. I therefore concluded to attempt closure by making an elliptical incision around it, dissecting out the tissue at the edges and suturing the wound left by this procedure. After making the elliptical incision, the skin and fascia were dissected up, the mucous membrane lining the small opening in the intestine turned inward and catgut sutures inserted in such a way as to close the intestinal orifice. The edges of the integument were brought together by interrupted sutures of silk, and an occlusive dressing of iodoform and collodion was then applied.

The operation, however, was unsuccessful, and fecal matter soon began to ooze through the wound, which failed to unite. The patient became very much discouraged and had rather serious symptoms a couple of weeks after the operation from partial suppression of urine. This condition had no relation to the operation.

After getting her kidneys to act more satisfactorily, on November 15, 1895, which was four weeks after the operation just described, I made a four-inch incision in the median line of the abdomen between the pubes and the umbilicus, and elevated the pelvis so as to throw the intestines upward towards the diaphragm. A loop of small intestine was found adherent to the edges of the internal femoral ring. The external opening through which feces had been escaping communicated with the interior of this loop of bowel. A piece of gauze was carried beneath the adherent coil, and the rest of the intestines protected as much as possible by pads of gauze. I carefully separated the bowel from the abdominal wall around the margin of ring, and drew it out of the incision. A double row of Lembert's sutures of silk was used to close the opening in the detached bowel. The line of suturing was made transverse to the long diameter of the gut in order to make as little constriction at that point as possible.

The fistulous opening was then cut out by transfixing the abdominal wall, after thorough cleansing of the excoriated surface of skin

around the site of the fistule. Catgut sutures were passed through the abdominal wall to close the opening, and the peritoneal surfaces beneath were drawn together by catgut sutures introduced from within the abdomen. The abdominal incision was then closed in the ordinary way with silk sutures. The convalescence was uninterrupted. The beneficial moral effect of the operation upon the patient was very marked.

I had intended to operate by the intra-abdominal route when she first came under my care, but was led to do the less serious operation by the exceedingly small orifice through which the contents of the bowel escaped.

A year and a half ago I operated upon a similar case in a feeble old woman of 64, who had had for about two years an artificial anus in the left groin due to a sloughing femoral hernia. An unsuccessful attempt to close this fistule was made, it was said, at the Presbyterian Hospital about fifteen months before I saw her at the Jewish Hospital. Fecal discharges occurred in small quantities almost constantly, and the woman seemed greatly depressed by this occurrence. Her age and feebleness made me hesitate for a long time to operate upon her. In October, 1894, however, I finally concluded that the risk was justifiable. The case was not one suitable for using the Dupuytren enterotome, as there seemed to be no special spur to be divided. A median incision was made and the patient put in the Trendelenburg position. The attachment of the bowel to the abdominal wall was much more extensive in this case than in the other. The fecal fistule was really sufficiently large to be called an artificial anus, for nearly all the contents of the bowel escaped here. This was quite different from the condition of the other patient, in whom nearly all the alvine evacuations passed through the normal route.

In both instances an effort was made to prevent contamination of the operative wound from the discharges coming from the fistule. In the present case I sewed the cutaneous margins of the fistule together over the orifice before making the median incision.

The gut, where attached to the abdominal wall, was encircled by a ligature which was drawn sufficiently tight to prevent the escape of feces into the abdomen when I detached the intestine from the neighborhood of the femoral ring. This was done because the opening was a large one and I feared fecal material would pour out into the peritoneal cavity. After the bowel was cut loose with the scissors, intestinal sutures were applied so as to close the opening in a transverse direction. The bowel was then dropped into the abdominal cavity.

This step of the operation left an opening in the anterior abdom-

inal wall at the site of the femoral canal lined with mucous membrane which had been left by cutting away the attached intestine on the inner side. The woman's condition was rather bad, and I, therefore, did not dissect out all this tissue and bring the raw sufaces in contact as in the first case. Some of the mucous membrane, however, was dissected away. The rest was allowed to remain and the opening closed spontaneously by nature's efforts. This portion of the operation I considered unsatisfactory because of the prolongation of convalescence. It would have been better if I had encircled the opening with an incision through the entire abdominal wall and brought the parts together so as to get primary union. This is easily done when the abdominal cavity is open, because the surgeon has access to both sides of the orifice.

In the other case this method was used satisfactorily. With a sponge pushed up against the internal orifice I was able to prevent wounding of the intestine when the knife was entered from the external surface, and also avoided contaminating the peritoneal cavity by secretions from the inflamed skin around the old artificial anus.

The intraperitoneal treatment of the conditions present in these three cases seems to me probably preferable, and much more effective than plastic operations done on the exterior of the abdomen or the use of the enterotome.

TYPHOID FEVER WITH HEMORRHAGIC NEPHRITIS, ERYSIPELAS, AND RHACHIALGIA.

By A. A. Stevens, M.D.,

Philadelphia,

Lecturer on Terminology and Instructor in Physical Diagnosis in the University of Pennsylvania.

The occurrence of three such unusual complications as hemorrhagic nephritis, erysipelas, and rhachialgia in a single case of typhoid fever may lend some interest to the following report:

D. H. L., aged 45 years, a bar-tender by occupation, was admitted to St. Agnes's Hospital on February 7, 1896. According to the history obtained from his friends, he had been in perfect health until three weeks before his admission, when he complained of weakness, chilliness, headache, and backache. For a few days he had been confined to bed, during most of which time he had been in a more or less stuporous state. On admission his temperature was $100\frac{1}{5}°$ F., respiration 22, and pulse 100, full and strong. The face was slightly flushed,

pupils contracted, tongue dry and brown, and breath offensive. The abdomen was somewhat distended, the surface revealing a dozen or more of typical rose-red spots. A bacteriological examination of the blood from this eruption was made by Dr. M. V. Ball, who found in it only streptococci. The spleen was distinctly palpable. The bowels were sluggish.

The stupor rapidly deepened into coma, so that on the second day after admission it was with considerable difficulty that the patient could be aroused. The urine was passed involuntarily, but in very small quantities, although an examination of the bladder revealed no accumulation. The urine was dark in color, contained free blood, and when examined with the heat and nitric-acid test brought down a precipitate of albumin, which on standing for several hours occupied more than half of the volume of urine examined. The sediment of the urine contained free blood-corpuscles, epithelial cells, uric acid crystals, and epithelial, granular, and hyaline tube-casts. The state of the urine, together with the coma, suggested uremia, the more so as the pulse was strong and the temperature only moderately elevated.

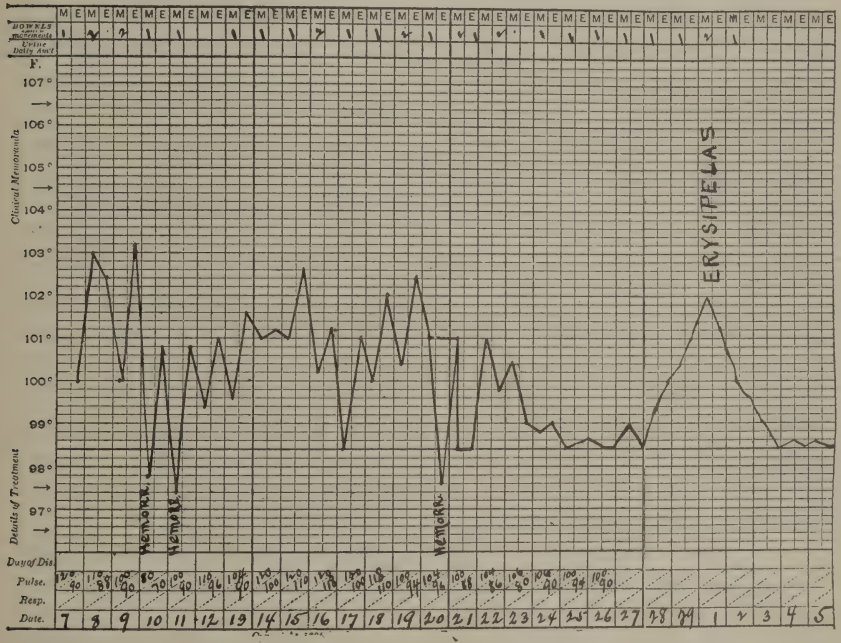
On the day after his admission a hot-air bath was prescribed, together with Epsom salt and tincture of digitalis. Under this treatment the mental condition somewhat improved, but only for a short time. On the morning of February 10, three days after admission, there was a free hemorrhage from the bowel, amounting to a pint and a half of bright blood. The bleeding was followed by a fall in the temperature to 98° F., general pallor, and enfeeblement of the pulse, but at the same time by a most substantial improvement in the nervous symptoms; indeed, for twelve hours after the hemorrhage the mind was perfectly clear. Under the circumstance I had hesitated to bleed the man from the arm, but the favorable effect of the spontaneous hemorrhage indicated that such a course would have been justifiable.

I have more than once seen the condition of a typhoid patient improved by moderate intestinal hemorrhage, even when no renal complications were present, but in no instance was the improvement comparable to that observed in this case.

On the day following the hemorrhage the fever gradually rose to its original height, 102° F., and the stupor returned, though not to the same extent as before; during the evening the patient lost a few ounces more of blood, and again showed some improvement. From this time on he slowly improved, occasionally, however, lapsing into a semi-stuporous condition, from which he was aroused by free sweating. As soon as the danger of intestinal hemorrhage had apparently disappeared, the use of Epsom salt was cautiously resumed. After

February 16 the urine was passed voluntarily; the quantity gradually increased, the albumin fell to a trace, and the tube-casts almost entirely disappeared.

Another slight hemorrhage occurred on February 20, and excepting this nothing disturbed the favorable course of the case until February 27, when, four days after the temperature had been normal, erysipelas started in a small furuncle which had formed in the helix of the right ear. The inflammation rapidly spread over the right side of the face and head, the temperature rose to 102° F., the stupor returned, and the urine fell off to ten ounces in the twenty-four



hours, becoming bloody and highly albuminous. The erysipelas, fortunately, was of short duration; by March 4 it had entirely disappeared, and with it the alarming renal symptoms.

From this time the patient rapidly improved; the urine gradually increased in quantity, became less and less albuminous, and at the present time (five weeks from the febrile period) it is normal in appearance and quantity, and contains neither albumin nor tube-casts.

On March 20, convalescence was again interrupted by the development of severe rhachialgia, the pain extending from the dorsal region into the thighs. There were no disturbances of sensation or motion; the reflexes were slightly exaggerated. There was

no tenderness over the spine, but the slightest movement caused intense suffering. The pain was attended with considerable emotional disturbance, characterized by hypochondriasis and crying spells. At the end of three weeks the pain had nearly disappeared.

While albuminuria or a nephritis in a mild form characterized by a small amount of albumin and a few tube-casts in the urine is not an infrequent complication of typhoid fever, grave nephritis with scanty bloody urine and uremic symptoms is comparatively uncommon. In 229 cases of typhoid fever observed by Osler in Johns Hopkins Hospital, albuminuria was noted in 164, and tube-casts in 103. In twenty one cases evidence was present of a definite nephritis,—much albumin and many tube-casts. In two the cases were really hemorrhagic nephritis. Mason[1] states that in 676 cases of typhoid fever admitted to the Boston City Hospital during the years 1890 and 1891, an acute nephritis was observed in twelve instances. Severe nephritis occurred in three instances in a series of 366 cases of typhoid fever observed by Hessert[2] in the Cook County Hospital, Chicago. In an analysis by Berg[3] of 1626 cases of typhoid fever treated in the Leipzig Clinic from 1880 to 1893, nephritis is stated to have occurred in 2.8 per cent. The hemorrhagic cases showed a mortality of 44.4 per cent. The Germans have given the name *nephro-typhus*, and the French, *fièvre typhoide à forme rénale*, to those cases of typhoid fever in which the general symptoms of the infection are subordinated to the renal phenomena. It is probable that nephritis may occur in typhoid fever in one of three ways: (1) as the result of the general toxemia; (2) from the direct invasion of the kidneys by typhoid bacilli; and (3) from a secondary infection by bacteria which have entered the circulation through the intestinal lesions.

In view of the serious degenerations and inflammations excited in other parts of the body by typhoid bacilli, it does not seem improbable that in some instances the kidneys receive the brunt of the invasion, and are thereby directly damaged; such a view is supported by the frequency with which the bacilli of Eberth have been detected in the urine of typhoid patients, and by the fact that the same microorganisms have been discovered by Karlinski, Ouskow, Faulhaber, Konjajeff, Blumer, and others in the renal tissues of subjects dead of nephro-typhus.

Gibney was the first to describe rhachialgia as a sequel of typhoid fever. In 1889 he reported four cases, employing the term "typhoid spine" to designate the painful condition. Osler[4] has reported four

[1] Boston Medical and Surgical Reporter, April 7 and 14, 1892.
[2] North American Practitioner, February, 1893.
[3] Deutsches Archiv für klinische Medicin, Band LIV, S. 161.
[4] Johns Hopkins Hospital Reports, Vol. V, 1895.

cases; J. N. Study[1] has published one; and two more have been reported from the wards of the Westminster Hospital, London.[2] The affection usually comes on during convalescence, often after the patient has been about, and ends in recovery in from a few days to several weeks. The cause of the pain is not definitely known, but its associated symptoms and course indicate that it is a neurosis.

THE PSEUDO-PARALYSES OF CHILDHOOD.[3]

By Charles W. Burr, M.D.,

Clinical Professor of Nervous Diseases in the Medico-Chirurgical College.

We will study to-day certain types of muscular weakness occurring in children and simulating palsy, but not caused by disease of the nervous system. Mothers will give you a history which as far as it goes is true, but which, unless you are forewarned, may completely mislead you as to the nature of the case. You will be told that a nursing infant has suddenly lost power in an arm or leg, or that a child has never walked and is palsied in the legs. You will examine the patient for the physical signs which always accompany true palsies and will not find them. Further examination will reveal some general constitutional disease, most frequently rickets or syphilis. Let us see, then, how either of these can cause a pseudo-palsy. We will first examine this four-year-old negro boy. He is the twelfth child, and was born at term after a hard labor in which instruments were used. He was apparently healthy at birth, and has never had convulsions or any acute illness. He was bottle-fed for about one year, and since has been on a diet made up largely of tea and potatoes. Eight brothers and sisters died in infancy. One brother has undoubted rickets. He has been brought to us because he has never walked. The parental diagnosis is palsy. Now let us look at him. You will, I am sure, make the diagnosis at sight. The extremities of the long bones at the ankle-, knee-, and wrist-joints are much enlarged. There is marked anterior bowing of the tibiæ, and the femoræ are also bent. The ligaments of many of the joints are greatly relaxed; so greatly at the hips that, as you see, I can completely flex the thighs upon the abdomen and bring the feet in con-

[1] Medical Record, July 28, 1893.
[2] Lancet, August 18, 1894.
[3] From a clinical lecture at the Medico-Chirurgical Hospital.

tact with the crown of the head. As he sits there is marked posterior bowing of the entire spine, but no angular curvature or other sign of Pott's disease. When prone the spine is perfectly straight. The abdomen protrudes. There is no beading of the ribs. The head is large and square. His teeth are normal in number but markedly decayed. There is general emaciation, but no local wasting; the legs are proportionately not thinner than the arms. He is far too quiet for a healthy child under the annoyance of an examination, and his mother says he will often sit for hours taking interest in and notice of nothing. At night, on the contrary, he frets, sweats much, especially about the head, and is feverish. In short, he is a typical case of rickets. But what about the alleged palsy? He cannot walk at all, cannot take one step, cannot stand. He can support himself by the chair only for a moment, and then sinks to the ground. While sitting in his mother's lap he can weakly kick and move the toes fairly well. If you did not know he had rickets, your first thought would be of palsy. But further examination shows that sensation is perfect. The knee-jerk is sluggish but distinctly present. He has complete control of the bladder and rectum. There is, as we have already said, no local atrophy of the muscles of the legs. The muscles react normally to electricity. There is no muscular rigidity. The legs hang flail-like from the body as we lift him up. His condition, then, does not correspond with that caused by any nervous disease either cerebral, spinal, or peripheral. On the other hand, we are told that the weakness is only in the legs. Let us see if this is true, since if it is true there is something more than rickets, because it alone cannot cause localized muscular weakness. It is not true. The child can, indeed, move fingers and arms, but not against even slight resistance. His grip is weaker than that of a suckling. The explanation of the mother's error is simple. She forgot that legs have harder work to do than arms and noticed only his very patent inability to walk. We have then a case of pseudo-paraplegia due entirely to muscular weakness, bad development of the bones, and relaxation of the ligaments. Under proper treatment he will recover. In a case as plain as this, with such evident signs, the diagnosis is easily made. But cases are not always so typical. There may be considerable muscular weakness with but slight evidence of disease of the bones. Some evidence you will always find, but you may have to look closely for it. With what diseases, then, may such cases be confounded? You will say infantile spinal paralysis and Pott's disease. The picture of a cerebral palsy is so entirely different that it could not be mistaken for rickety weakness. If you know the previous history of the case, infantile spinal palsy can be immediately excluded, for it comes on

acutely with moderate fever and rapidly increasing palsy, which receding leaves greater or less loss of power in one or more extremities. If you have no history, examination alone will suffice, since in the late stage of infantile palsy there is local wasting, alteration in the electrical reaction of the muscles, and abolition of the deep reflexes. In Pott's disease there is the evidence of local bone disease in the spine, and according to its location a spastic or a flaccid palsy with it, if the case be severe, anesthesia and more or less palsy of bladder and rectum.

There is still another disease for which you may mistake the pseudo-paralysis of rickets,—pseudo-muscular hypertrophy. Emaciation is not always present in rickets ; indeed, the child may be very fat, and in such a case, if the disease has come on after he has learned to walk, the gait may strongly simulate the duck-like waddling of pseudo-muscular hypertrophy, and you may be still further misled by the apparently good development due to the excess of fat. But in pseudo-muscular hypertrophy the calves are not only large but hard, and you will find other muscles wasted. The knee-jerk is diminished or absent. There is constantly decreasing muscular reaction to the electric current. Often you will find a history of similar cases in the family.

I am unable to show you an example of syphilitic pseudo-palsy, but it will well repay a little study. It was carefully studied by the French physician, Parrot, who, in 1886, published a work in which he maintained that rickets was the ultimate phase of syphilis. This view has not been generally accepted, and the most valuable thing in the book is his description of the changes which occur in the bones, especially the heads of the long bones, of syphilitic infants, resulting in separation of the epiphyses from the diaphyses and consequent helplessness of the extremity. The clinical history of the disease varies with the number of bones seriously involved. Thus, there may be an apparent palsy of only one arm, or of both legs, or of all four extremities. For example, a child is successfully born, and after from three weeks to three months—for Parrot's disease is ordinarily an affection of early infancy, during which time the child may or may not show signs of infection—the mother notices that it has ceased, suddenly it may be, to use one arm. On examination the arm hangs motionless as if broken. Sensation is normal. There is no wasting. The muscles react well to electricity. There is pain in the affected area on passive motion, and you may, perhaps, feel crepitus. If there is a collection of pus you will notice swelling and the other local signs. The diagnosis is not difficult unless you are misled by the history of a sudden loss of power which will sug-

gest palsy, or by the presence of crepitus which may make you suspect the child has suffered some injury from without. Still more misleading are the cases in which one extremity after the other becomes affected as the bone-disease becomes more advanced, leaving the child powerless, the arms lying pronated by the side, and the legs stretching straight downward like two sticks, and when the infant is lifted up swaying loosely back and forth. The total absence, however, of all the correlated signs of palsy, the presence of distinct bone-disease, and the existence of syphilis suffice for the diagnosis. Parrot regarded the condition as necessarily fatal, but in recent years cases have been reported which, under proper treatment, recovered.

REPORT OF A CASE OF CHRONIC PROGRESSIVE PARALYSIS DUE TO PRIMARY MUSCULAR DYSTROPHY; AUTOPSY; HISTOLOGICAL STUDY.[1]

By F. Savary Pearce, M.D.,

Philadelphia.

The following case presents a clinical history, not typical of idiopathic muscular atrophy, or of pseudo-muscular hypertrophy, nor of progressive muscular paralysis of spinal origin, yet retaining such phenomena of these several conditions as to warrant its being put on record, inasmuch as it manifests the accepted exception to all types in disease. The pathological study places the primary and persistent disturbance essentially in the muscles, and thus points out the great difficulty of clinically placing such morbid states where they belong.

It is set down in much of the recent literature upon the subject that these allied conditions may be but different manifestations or stages of the same process. Electrical changes, ever so valuable as aids, are not proof of spinal or nerve-trunk lesions in these doubtful cases.[2] Pathological histology alone can make positive their neuropathic or myopathic genesis.

Mrs. F., aged 59 years, was first seen by Dr. S. Weir Mitchell, with Dr. E. H. Van Dusen, on November 13, 1886. The patient had

[1] Read at the meeting of the Philadelphia Neurological Society, February 24, 1896.

[2] A review of S. D. Savill's paper in "Brain" for January, 1896, on "Electrical Changes in so-called Idiopathic Myopathy," emphasizes this statement. This author collects a number of cases to which he adds in detail one of his own at Salpétrière, where slight degenerative changes were found.

then been suffering from muscular paresis for eighteen years. There was no history of any nervous, infectious, or diathetic disease, nor was there metallic or alcoholic possibility as a pathological factor in the case. She had had the ordinary diseases of childhood in mild form. Catamenia was established normally. She had had no miscarriage or other indication of specific poisoning. Of four children born all are in excellent health, except the youngest (aged 26 years), who died of rapid phthisis.

The present trouble is attributed to a fall down-stairs in 1866. Several years later, at the age of 32 years, and not long after the birth of her last child, a weakness of the third and fourth fingers of both hands was noticed, the difficulty apparently being due to paresis of the forearm extensors. This condition slowly progressed for several years, until double wrist-drop became apparent. At this time, too, failure of the foot and leg extensors on both sides became evident. She would catch her feet in the rugs about her room from failure to elevate her feet properly. There was no pain or tenderness anywhere. Locomotion was difficult, and there was a distinct swagger in her gait.

The flexor muscles of the feet, legs, and thighs did not become markedly affected until at the age of 41 years (nine years later), when the patient had become quite helpless. Since that time there has been a less marked and gradual loss of power in the flexor muscles of the forearms, then of the upper arms, then of the calves of the legs, and of the flexors of the thighs, and finally becoming general. The order of flexor paralysis had thus been the reverse of that antedating failure of the extensors,—a rather unique coincidence!

At one time the patient seems, from the history given, to have had failure of power in the anterior muscles of the neck; but in the examination made in 1886 this had disappeared, or at least was little noticed. During the entire period of her paresis there had been no well-defined or marked atrophy. Dr. Mitchell *especially* noted this.

The notes made in 1886 read as follows: "A strikingly intelligent woman. She sleeps well; appetite is good; bowels are regular; digestion is normal; general health is excellent. Urine examination negative. There was some slight incontinence of urine only when the bladder was filled."

There was nothing in the nervous or muscular systems, nor any difficulty with any organ of the body to indicate the cause of the peculiarly-distributed paresis. Her speech was good and deglutition normal. The tongue protruded straight and was not atrophied. The patient was extremely pale and very nervous; also, she was very helpless, being just able to go about alone when placed upon her feet, and with difficulty could slowly mount the stairs when assisted.

At this time (1886) there was not much apparent wasting (only slight atrophy of the hand dorsal interossei); but rather a fulness of almost all of the muscles, not to such an extent, however, as is seen in pseudo-muscular atrophy in its early stage. Entire loss of mechanical reactions everywhere was noted. There was extensive rigidness of the extensor muscles; a woodenness of the muscles everywhere was noted. Perhaps the calf and muscles of the back were fuller than the others of the body. Of late years there seemed to be a fulness in areas over the tibials antici; this has now disappeared. The decrease in strength of the extensor and flexor muscles has been relatively equal during the past few years, but the extensors were much the feeblest. There is no tremor nor fibrillary contraction of the muscles, and no tender areas exist. Several brawn-like areas exist in the arms below the deltoids, which must be due to increase of fat and loss of muscle fibre.

The patient cannot shut tightly or open her hands widely. They remain passively semiflexed. The interosseals alone are somewhat wasted. Co-ordination in the hands is absolutely perfect. The temperature sense is everywhere good. The patient asserts that sensation is, as it always has been, good. The nails are normal, and there are no nutritive changes otherwise noted. There is no tenderness along the nerve-trunks. The cutaneous reflexes are sluggish. Elbow-jerks and knee-jerks are absent and not reinforcible. There is no muscle-jerk. Where a muscle is struck, there develops a sudden transient redness due to vasomotor weakness.

Electrical Examination.—Absolute failure of muscles to respond to faradic current; a tremendous quantitative lowering.

Galvanic current gives An.Cl.C. $>$ C.Cl.C., and An.O.C. $=$ C.O.C. over biceps and triceps, right arm, signifying slight reaction of degeneration due to *slight* involvement (?) of nerve endings and *great* muscular change.

The left arm muscles require ninety cells to produce faint contraction. Median nerve of left arm A.Cl.C. requires over one hundred cells to get any response.

In 1887 Mrs. F. was unable any longer to go up or down stairs. This act had been difficult for her for the year previous, and an elevator was put in the house which she used until a few days before her death. The loss of power in the muscles of the legs was extremely gradual, but constant and steady. No more noticeable atrophies developed than those of the hands noted in 1886. This was demonstrated up to the time of her last illness (in March, 1895), when, if she was placed in an upright position, she could sustain herself alone by bending the body slightly forward. When supported in the upright

position she could swing either foot over a small arc. She accomplished this entirely by the use of the flexor muscles. She could also abduct either limb slightly, and could extend either foot. On attempting to advance either leg she could not raise the foot an inch from the floor. When standing unsupported, the slightest touch would disturb the equilibrium and occasion a fall.

For some years before her death no evidence of power in the quadriceps extensor femoris could be detected. Her ability to stand alone latterly was due solely to the fact that the bones of the leg and thigh, when extension at the knee was complete, formed an obtuse angle pointing backward, thus permitting the weight of the body to prevent flexion at the knee. Several years before her death there developed a noticeable contracture of the extensor apparatus of the right foot. This remained stationary.

As far back as 1887 she was compelled to abandon all attempts to use a needle, but was then still able to feed herself and in part to dress herself. A few years later, however, she was compelled to submit to being washed and dressed, and was only able to feed herself after the food was especially prepared and by the aid of a very long fork, as the hands could not be raised to the mouth. To the time of her death her writing was good, but it became something of a task on account of the conscious effort. For years her grasp had been so poor that she was unable to make shaded letters with a hard pen. In the last year she realized that her ability to write at all was departing. Up to the end the patient sat erect and held her head in the erect position, and could lean forward and straighten up without difficulty. Rotation of the head was performed readily, but anterior, posterior, and lateral movements were made slowly and with evident effort. The contour of the legs, arms, trunk, neck, and head remained well rounded, and there was a firmness of the tissues to palpation out of harmony with the appearance, which was one of utter relaxation. The hips, waist, arms, and shoulders lacked normal contour; and to a lesser degree the face was expressionless. Flushing of the face and neck was very frequent and often without apparent cause. Sometimes the redness was general, at other times occurring only in sharply-defined spots of irregular outline and covering several square inches of surface. There was never any detectable loss of sensation, nor was there the slightest impairment of mentality. Her disposition remained cheerful and contented. She retained her interest in the affairs of the family and her old friends, and she was an omnivorous reader, with a retentive memory and almost a passion for recording and classifying events. The general health had kept remarkably good all these years, her only illness resulting from occasional slight attacks

of indigestion, or from bronchitis or laryngitis. She never suffered from pain in the legs, and did not have backache or headache. Urination and defecation were normal. Cough, when she had one, was peculiarly hollow and labored. The voice was naturally rather low, but she had no difficulty in calling aloud so as to be heard a hundred yards away. She had been a singer, but the vigor and compass of her voice was gradually reduced.

Fortunate it was that the trophoneurosis did not select out the small joints to harass the sufferer as a rheumatoid arthritis.

On February 19, 1895, she had a chill followed by stitching pains in the chest localized over a small area at the left base anteriorly. For several days the pulse varied from 90 to 100, and the temperature remained at about 101° F. The pains disappeared and the cough abated. On February 27 the pain recurred, but over a different area; this time posteriorly, with well-marked signs of double lobar pneumonia.

On March 1 the heart was evidently laboring under its burden, but it did not cease to act until March 7. We made the post-mortem examination the next day.

Autopsy.—March 8, 1895, 4.30 P.M., eighteen hours after death. Death due to cardiac failure complicating pulmonia. Body of a woman about 60 years of age; dark hair; well preserved and apparently well nourished; rigor mortis moderate; no scars or deformities noticed, except wasting of interossei muscles of hands. On making median incision from episternal notch to pubis the chest and abdominal walls hung heavily with a bright yellow fat, one and a half inches thick over the thorax, and one and three-quarters inches thick in the abdominal parietes. The pectoral and intercostal muscles were small and studded with fat droplets, which were pale and flabby as if having undergone fatty metamorphosis. The same appearance obtained in the recti-abdominal muscles.

Thorax: Excess of fat about the pericardial sac and in the mediastinal spaces.

Heart: Pericardium contained the normal amount of fluid. The heart was in an advanced state of fatty degeneration, the right auricle having only an area of about the size of a quarter-dollar, where with the naked eye muscle could be seen; the rest of the cardiac muscle had likewise undergone fatty change. The index finger could be easily pushed through its walls. There was no pathological change in the endocardium, and the size of the organ was normal.

Lungs: Both lungs in the lower lobes were the seat of recent lobar pneumonia. The organs were somewhat undersized, and in both apices were two healed scars, but no tubercular process was

noticeable. There was some emphysema in the right lung in the middle lobe anteriorly.

Diaphragm: The diaphragm was as thin as a piece of ordinary blotting-paper, and had undergone advanced fatty change.

Omentum: The omentum hung heavy with yellow fat, and the pelvis was simply filled with adipose tissue.

The uterus and ovaries were senile.

Appendix, intestines, and liver were normal.

The spleen was somewhat atrophied and hard.

The biceps muscles of the arms were of fair size, but were really masses of fat; cross section of the right one showed very few muscle-fibres macroscopically. The recti-femori group on the right side were also cut out *en masse*, and showed the same state of fatty degeneration. The anterior tibial groups of muscles were also examined, but in them the fatty change was not quite so far advanced. The biceps and internal hamstring muscles of the right thigh were in a well-advanced state of fatty metamorphosis, but to a less degree than the other muscles examined.

The spinal cord showed no macroscopic change. The cord, median, sciatic, external, and internal popliteal nerves, and portions of the muscles spoken of above were preserved for study.

Pathological Report.—Pathological Diagnosis; Idiopathic Muscular Atrophy.

By James R. Hunt, M.D.

Spinal Cord.—Cervical swelling not obtained. The specimen was in Müller's fluid for six months, then stained with carminate of soda, aniline blue-black, and by Weigert's and Pal's method. The normal symmetry and relation of the gray and white matter was preserved at the various levels of section.

The ganglion-cells in the anterior horns were normal, excepting a few in the lumbar and lower cervical regions, which were degenerated and destitute of processes. There were no spaces which would indicate the disappearance of these multipolar cells. The cells of Clarke's columns were normal throughout. The direct and crossed pyramidal tracts were normal throughout the entire length of the cord. The anterior commissure, anterior and posterior root-fibres and roots showed no change; this was also true of the lateral and posterior columns.

The blood-vessels were everywhere distended with blood, the corpuscles in many places having wandered out into the surrounding structures, while in the cervical region there was at one point a

minute hemorrhage. The vessel-walls presented evidence of moderate atheroma.

The cervical canal was packed with cells, effectively excluding its lumen. Numerous amylaceous bodies were present, especially in the anterior columns.

The sections stained readily and showed slight thickening of the connective-tissue processes of the pia.

Peripheral Nerves.—The median and sciatic nerves were examined and found normal. There was some increase in the connective-tissue framework.

Muscles.—Macroscopically the quadriceps femoris appeared pale yellow; the sarcolemma sheaths were filled with plugs of fat which projected somewhat above the surface.

The biceps of the arm contains areas of tissue which might be called muscular, but it was evidently much degenerated. Microscopically, the myosin was everywhere degenerated, the degree of change being varied. The greater number of fibres were granular, the granules here and there being fused, forming droplets. Some fibres showed the longitudinal striations described by Erb, and this condition coexisted with the transverse markings.

Numerous sarcolemma sheaths were observed which contained no muscular substance whatever, the myosin evidently having undergone complete destruction.

These empty sheaths existed singly in the midst of fibres showing but slight change, or were grouped together in large numbers. Between the fibres there was an infiltration of round cells, and these were most numerous in the areas showing the most degeneration. Many spindle-cells and connective-tissue fibres add to the bulk of interstitial tissue, which hold, here and there, in its meshes clusters of large, fat droplets.

Dr. C. W. Burr kindly went over the series of slides, and has confirmed the above report in its details.

This case is not a well-defined type of myopathy, such as are described in the recent works on the subject.[1]

(1) It did not begin as early in life as is usually the case, in pseudo-muscular paralysis: this disease commonly showing itself between the ages of 5 or 6 years, and most commonly occurring in the male. Nor was the order of distribution the same as in pseudo-muscular atrophy; yet most of the muscles remained of good size and were refilled with fat at death.

(2) Nor is it typical of any one of the three divisions of simple muscular atrophy,—viz.,

[1] Gowers's Manual of Diseases of the Nervous System, Second Edition, 1891, Vol. 1, pp. 505 to 521.

(*a*) The juvenile of Erb, where pectorales, etc., waste.

(*b*) The facio-scapulo-humeral type of Landouzy and Dejerine, or,

(*c*) Of that in which the weakness and atrophy are limited to the legs for years.

The age (between 3 to 60 years)[1] and sex of the case in point accord with simple atrophy. The wasting of forearm and of the interossei muscles of the hands is adverse to any form of simple atrophy,[2] for while rarely the forearm muscles have been much atrophied (in several reported cases only) ; yet in a few others there has been seen this wasting of the small muscles of the hands, the thenar and interossei muscles ; or, indeed, the interossei alone, as in our case.

But in the *large majority* of cases of *idiopathic muscular paralysis* the integrity of these muscles of the hand and forearm is a marked feature of the disease, and is in contrast to the (3) *spinal form* of atrophy. The absence of tremor or fibrillary contractions, too, throughout the long course of the disease militated against cord lesion.

Atrophy of the lower part of the latissimi dorsi and pectorales major muscles (classic in the symptomatology of pseudo-hypertrophy, but less common in simple muscular atrophy) could not be detected The great quantitative change in the electrical inaction of all muscles together with the *slightest* reaction of degeneration only (after eighteen years of muscle disuse, as tested in 1886) placed the primary disease process on the muscles, and not on the spinal nerve endings.

Conclusions from an Analysis of the Above Case.

Chief Symptoms.—Muscular failure beginning at about the age of 32 years in a female, a multipara, without known hereditary or developmental cause. There was but meagre atrophy. This progressive paresis continued for over twenty-seven years,—*i.e.*, until the pneumonia cut short her life at the age of 59 years.

As to Etiology.—There is a history of severe concussion from a fall several years previous to any noted muscular failure, but one hesitates to place this as a causal factor.

More likely the lowered muscular trophic condition (perhaps congenital) preceding the fall and aggravated by it, plus the exhaustive drain upon her weakened vitality following the birth of her last child was the turning point towards the blight of muscle

[1] Barsickow's table of onset of the ailment in simple muscular atrophies gives 17 cases as follows: 12th year, 1 case ; 15 to 20, 4 cases ; 20 to 30, 7 cases ; 30 to 40, 3 cases ; over 40, 2 cases.

[2] Gowers (*op. cit.*) reports only two cases where the hand muscles are affected in simple dystrophy.

growth. They were thus singled out, as it were, for a burden they were unable to bear and never to unload, although the other processes of life went on well.

No satisfactory explanation presents itself for the unusual beginning, and always more persisting weakness of the extensor muscles, the dorsal interossei of the hands, the forearm extensors, the leg and thigh extensors, and the final involvement of the flexor muscles of the extremities *in reversed order.*

The great quantitative reduction to electrical response is consistent with the muscle affection, while the slight qualitative change shows from enforced non-functionation muscle degenerations, and, perhaps, consequent slight degeneration of sensory-motor nerve filaments alone, not of the larger trunks.

The remarkable intelligence of the woman, in proportion to her great physical impairment to the time of her death, is interesting. How far the cerebrum was stimulated to work the better, because the patient was helpless, or to what extent compensatory development might take place in such a case under favorable conditions, is a problem for the psychologist. It is to be regretted that the brain could not be obtained for study.

Had the intercurrent pneumonia been stayed (and this condition was, no doubt, favored by the feebleness of respiration from the weakened muscles of the diaphragm and thorax), or had no other disease supervened, it is impossible to state how long functionation of the complex organism could have been kept up without discomfort or danger to the vital processes.

As to Treatment.—The woman had received massage for a time with benefit. The rest of the treatment was tonic and expectant.

It is interesting to note here that some cases of incipient muscular dystrophy are much improved by systematic exercises within the limit of tire. Dr. A. Wiener reported improvement in such a case (in a man, aged 20) at the meeting of the New York Neurological Society, in December, 1895.

My friend, Dr. Wm. G. Spiller,[1] informs me that to-day he made an hitherto unrecorded observation as to the neuropathic or myopathic origin of a given case, which may go to disprove the somewhat prevalent idea that myopathies *per se* do not exist. As to the *fons et origo mali*, indeterminate trophic influence is probably the best explanation which has yet been offered.

[1] Dr. Spiller then showed that in a case of idiopathic muscular atrophy, the muscle of which was obtained from Dejerine's laboratory, he had demonstrated the existence of intraneural muscular fibres persisting.

TRAUMATIC RUPTURE OF THE MEMBRANA TYMPANI.

By George Fetterolf, A.B., M.D.,

Clinical Assistant in the Department of Diseases of the Ear, Philadelphia Polyclinic.

It is extremely doubtful if this accident can occur to a drum which is normal or as near the conventional norm as this climate and the mode of life of its inhabitants will allow. This fact has been emphasized both by observation and by experiment, Gruber[1] having almost conclusively shown it from an experimental stand-point. We can, therefore, put down as a predisposing and contributing cause, and not an unimportant one, a stiffened and thickened drum with much of its normal resiliency gone. This may exist to any degree from simple catarrhal change to a dense, leathery condition associated with one or more calcareous deposits, this calcareous condition being perhaps the most favorable.

Another predisposing cause is Eustachian stenosis. This is mainly true when the fracturing agent is atmospheric pressure, not confined to the external meatus. Such a condition is met with in closed chambers containing atmosphere at a high degree of pressure. Dr. A. H. Smith, who was the physician in charge of the men working in the caissons of the Brooklyn Bridge, reports in his essay many cases of ruptured tympanic membranes. It is a self-evident fact that when atmospheric pressure is the fracturing force it must be higher on one side of the drum than on the other. In these bridge cases, therefore, there was almost certainly some Eustachian obstruction which prevented an equilibrium of internal and external pressure. Indeed, the entrance into and exit from an atmosphere of high pressure would be likely to cause a swelling of the Eustachian mucous membrane, on account of the difference in pressure between the inspired air and the normal pressure in the capillaries.

The exciting causes may be direct or indirect violence applied from without or within.

As regards direct violence from within this obviously would come only from the hands of the medical man, and since the Eustachian bougie has fallen into disuse this accident is not likely to happen. From within, therefore, violence can come only in the form of increased atmospheric pressure. This may be caused either by a sudden expiratory effort, as a cough or a sneeze, or by vomiting. More common than this, although rare, is rupture from too vigorous Politzerization. Under usual conditions such an accident could not

[1] Lehrbuch der Ohrenheilkunde.

happen, but with a large bag, a strong hand, a widely patulous tube, and a stiff drum, a sudden closure of the bag would result in the speeding of a bolt of air through the Eustachian tube that could easily make a rent in the membrane. The writer knows of one such case. Indeed, considering the cure-all reputation enjoyed by the air-bag and the great number of times it is used by unskilled hands directed by unscientific minds, the wonder is that the accident does not occur oftener than it apparently does.

Direct violence from without is the cause of a number of cases. Patients sometimes puncture their own drums as a result of the deplorably frequent habit of cleansing or scratching the ears with stiff instruments. On account of the inclination of the drum (Zaufal) and the direction of the canal the trauma in such cases is usually in the anterior portion of the membrana tensa. The laity are not alone responsible for unnecessary holes in the drum; a zealous physician has been known, while removing a wax plug, suddenly to become so radical in his ideas as to remove the tympanic membrane and portions of the ossicles.

Indirect violence from without is by far the most common cause. While sometimes arising from a fractured petrosal, the injury is usually due to a blow from an open hand or a fist, a fall on the side of the head, a violent explosion,—in a word, to anything which will produce a sudden condensation of the air in the external meatus without a reciprocal condition in the middle ear. The clinician is sometimes told by his patient that a knuckle entered the meatus, but the mechanism of the process, when a blow is the rupturing force, is probably a sudden forcing in of the tragus, thus closing the external meatus and making violent expansive pressure on the drum.

Symptomatically these cases and those of acute otitis media are kindred and differ only in degree. There is complaint of pain, sometimes of a stinging and often of a throbbing character, marked obtunding of audition, giddiness, and various forms of tinnitus. The signs are unmistakable. The presence of blood, sometimes pouring out freely from the canal, taken in connection with the history renders the diagnosis clear and certain.

The effects of this form of injury will be determined by the previous condition of the drum, by the extent of the trauma, and by the possible intervention of suppuration. The conditions met with are so varied that no definite rules can be laid down, but the cardinal principle underlying treatment is non-interference.

Should a case be seen within a few hours after the reception of the injury and while blood is flowing from the ear, the following course will probably best meet the indications. The ear should be

gently cleansed with a stream of carbolized water as hot as can be comfortably borne. Little force should or need be used, and for this purpose a douche apparatus, that can be raised or lowered at will, is very convenient. In the absence of such facilities a syringe, carefully used is the best substitute. After the bleeding has been checked, and the parts rendered surgically clean, an aseptic speculum should be introduced, the remaining clots should be removed with a dossil of sterilized cotton, and the exact location and condition of the tear should be determined. Should the injury be simply a puncture or a linear tear, a delicate film of boric acid or—as the writer prefers on account of its more marked antiseptic properties—acetanilide should be insufflated. A pad of sterilized cotton should then be placed over the pinna and retained by three or four turns of a light gauze bandage. The subsequent treatment consists in observing the ear daily for four or five days, and, should the desideratum, a dry, aseptic scab, be attained, in pursuing a course of masterly inactivity. A careful watch should be kept over the upper air-passages to forestall, or to mitigate the severity of any possible inflammation of the ear from this source. At the end of three weeks the ear can be gently cleansed and the detritus overlying the wound and the rest of the drum removed. This is not difficult to do as the outer layer of the epithelium of the drum will have desquamated by this time, thus rendering the task an easy one.

If the wound consists of two converging lines, a flap of drum will swing free, except at its basal attachment. An attempt should be made to replace and to retain this flap in the plane of the drum. This is best accomplished by using a small paper disk, after the manner of Blake.[1] This consists in cutting a disk of moderately stiff paper, fitting it over the injured area, and allowing it to remain untouched until the drum has healed, or until the paper becomes displaced. Should displacement occur it should be reposited. In order not to detach the disk the patient should be advised to blow his nose very gently for the three or four days succeeding its application.

Should the case be seen two or three days after the reception of the injury the treatment again will vary with the local condition. If necessary, the meatus should be cleansed by instrumental means as far down as the fundus, using no solution so as not to remove a firm scab. If the wound is found to be covered with a benign crust it should be let alone. Absolutely nothing is to be gained by interference. If, however, it appears angry or moist or the seat of either a serous or a purulent discharge it should be mopped or syringed clean, dried with sterilized cotton, and treated as an ordinary otorrhea.

[1] Transactions of the International Otological Society, 1877.

I append the histories of two cases. I am enabled to do this through the courtesy of Professor Seiss, in whose clinic and with whom they were seen.

Case I.—Mrs. A. M., 35 years old. Early one evening her husband came home drunk, and hit her with his fist on the left side of the head. She said that a knuckle entered her ear, an obvious impossibility. She came at once to the Polyclinic Hospital with her hands and clothing bloody, and with blood dripping from the lobule of her left ear. She was treated by one of the resident physicians, and the hemorrhage checked. The next day she reported at the clinic in a markedly intoxicated condition, with active bleeding from her ear and complaining of deafness and severe pain. Her left meatus was covered with dark blood and her drum showed a ragged tear extending from the long process of the malleus downward and slightly forward almost to the periphery and oozing arterial blood. It was gently syringed and a pad of sterilized cotton, lightly dusted with boric acid, was tucked into the concha and lightly bandaged in place. Two days after she returned with an account of vertigo, tinnitus, and stinging pain. The wound was oozing a little serum; beyond the fundus the canal and its coating of powder were dry. The moisture was gently drawn out with absorbent cotton, a little acetanilide blown in, and the pad of sterilized cotton replaced. Twelve days after the reception of the injury she returned with an absolutely dry and clean canal, with no pain, and with hearing as acute as on the uninjured side.

An interesting feature of this case was the discovery, at the last visit, of a large postero-inferior perforation. This is explained as follows: The other ear showed decided catarrhal change. Probably on this side, there had existed a lime spot, along the anterior edge of which the tear had taken place. The nutrition of this part of the drum being already so much impaired it was unable to retain its vital integrity after the severance of so many afferent vessels. Sloughing followed and the perforation was the result.

Case II.—W. R., 32 years old. While jumping off a car fell and struck the side of his head on a pile of bricks. He arose at once and went home, apparently none the worse for the accident. That night his ear bled a little, but caused him no further annoyance. Two days later he became suddenly deaf on that side; a few hours subsequent to this he felt a little tickling at the angle of his jaw, and, putting up his hand, discovered a small stream of blood slowly trickling down his cheek. Three days later, or five days after the accident, he came to the clinic.

The right ear presented a small funnel-shaped cicatrix at the site of an old perforation.

Left ear. The canal was clean and the drum showed a small ragged tear one millimetre long in front of and parallel with the long process of the malleus and a little nearer to the annulus tympanicus than to the malleus. A small quantity of sero-sanguinolent fluid oozed from the laceration. The canal was syringed with hot antiseptic fluid and a little acetanilide was dusted in.

Two days later he returned with his drum a little bulged and edematous, but with the outer surface dry. The region of the tear was covered with a dry aseptic crust. Rest and dry heat were ordered. He continued to visit the clinic regularly and at each visit the condition of the drum was found to be improved. Nothing was done; the scab was allowed to remain untouched. Three weeks after the first visit the ear was thoroughly cleansed with hot carbolized water. The region of the tear showed a white cicatrix surrounded by a narrow zone of congestion. His hearing was very dull, owing to interference with conduction. Six weeks after his first visit his hearing was very much improved under the treatment used for an ordinary catarrhal drum.

In this case the occurrence of sudden deafness and hemorrhage are interesting. Evidently by this time a scab had formed over the tear and some sudden exertion or violent blowing of the nose had started the hemorrhage afresh. The bleeding, however, was into the middle ear, as shown by the sudden deafness. After the middle ear became filled the cork-like scab was pushed off and blood appeared in the canal and on the face, as described. This filling of the middle ear with blood explains, too, his slow recovery of hearing.

The Treatment of Incoercible Vomiting by Faradization of the Pneumogastric Nerve.

This by no means new method of treatment of severe vomiting is considered by Boninefin in *La France Médicale* of September 20, 1895. He details cases in which severe vomiting was greatly relieved by this method of treatment continued for a period varying from ten to twenty-five minutes, the positive pole being placed over the pneumogastric nerve in the neck and the negative pole over the stomach. He believes that by this means we can not only control vomiting, but during the time faradization is continued food can be given which will be absorbed through the stomach, and thereby the patient will receive nourishment.—*Therapeutic Gazette.*

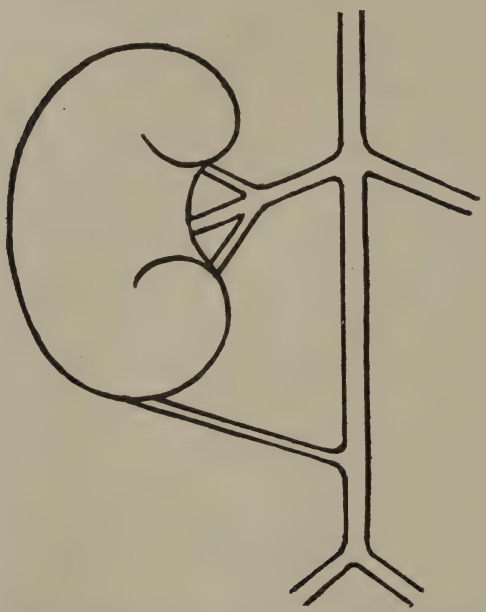
KIDNEY ANOMALIES, WITH SPECIAL REFERENCE TO THE SURGERY OF THE KIDNEY.[1]

By James J. Walsh, A.M., M.D.

Anomalous Renal Arteries.—At the suggestion of Dr. Holmes, special attention was paid to anomalous blood-supply of the kidneys, with reference to the amount of tissue that would have to be ligated in nephrectomy and the danger of hemorrhage from unexpected anomalies of the renal arteries and veins.

In forty-two subjects more than one artery was found. Fifteen

Fig. 1.



Accessory right renal artery coming off three inches below the normal renal artery and entering the inferior extremity of kidney.

times—*i.e.*, in nearly 18 per cent. of the kidneys—there was at least one accessory artery. In four cases there were three arteries, and in one case four distinct arteries were found. This is somewhat less

[1] A selection with some added notes from the list of anomalies to which was awarded the prize for the best list of anomalies found in the anatomical rooms of the University of Pennsylvania, Commencement June, 1895. The writer has to thank Dr. E. W. Holmes, the demonstrator of anatomy, for permission to publish these notes, and Professors Piersol and Conklin for references and suggestions.

than the percentage given in Quain, 20 per cent. (edition 1892), and about the same as that given in the report of the committee of collective investigation of the Anatomical Society of Great Britain.[1] In nine of the cases the accessory artery was a small vessel that arose in six cases below and in three cases just above the normal renal artery and joined the kidney at the hilum. In one case its origin was three inches below the normal renal, and it entered not at the hilum, but on the anterior surface of the kidney substance proper some distance from the hilum. (See Fig. 1.)

The accessory arteries to both the kidneys of one subject arose

FIG. 2.

Accessory renal arteries coming off from the bifurcation of the aorta and entering the kidneys at their inferior extremities.

symmetrically just at the bifurcation of the aorta and ended on the *inferior* extremities. (See Fig. 2.)

In two of the four cases where three arteries were present, one of the accessory arteries entered the kidney above the hilum.

In one of these four cases the two accessory arteries, one above and one below, ended in the kidney, outside of the hilum, one on the anterior surface, one slightly posterior. (See Fig. 3.)

In the kidney with four arteries, though the arteries arose in pairs more than three inches apart at their origins, all of them entered at the hilum. (See Fig. 6.)

[1] Arthur Thomson, Journal of Anatomy and Physiology, Vol. XXV, 1890.

An anomaly corresponding to multiple arteries, and one that presents the same inconveniences surgically, is the immediate division of the renal into branches.

Five examples were noted in which the common renal trunk was not more than half an inch in length. In two of these the division was into three principal branches (the further division of the branches just before their entrance into the hilum of the gland taking place more or less normally and being of little interest surgically). One of these main branches in each case entered the kidney outside the hilum slightly above it.

In one subject the renal arteries divided symmetrically into five branches, the common trunk being about half an inch in length on the right and less than that on the left. Two branches on each side

FIG. 3.

entered the kidney outside the hilum on the anterior surface above and below. The two branches that ended below went down nearly to the inferior extremities of the kidneys. (See Fig. 4.)

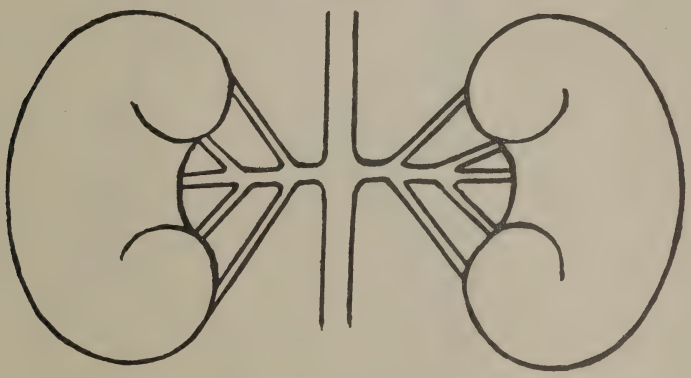
In these cases where accessory renal arteries or anomalous branches end near the extremities of the kidneys special precautions would have to be taken in nephrectomy to avoid post-operative hemorrhage. The ends of such vessels would scarcely be included in the ordinary ligature of the pedicle, and their retraction after section might withdraw them from the operator's field of view. They occur with sufficient frequency to need to be looked for carefully in every case.

Anomalous Renal Veins.—Accessory renal veins are much rarer than accessory renal arteries. In forty-two bodies only six times was

there found a supernumerary vein to the kidney. In four of these cases this occurred on the left, and in two out of the four the accessory vein went to the vena cava below instead of above the aorta. In one case three veins were found. In five of the cases there was also at least one supernumerary artery to the same kidney. In but two cases did the accessory vein leave the kidney at a point outside the hilum, and in those an accessory artery entered near that point.

Small branches from the renal vein to the left azygos were not uncommon, but in one case this was so large and important as to seem a continuation of the trunk of the azygos, and was probably the result of a persistence of the left cardinal vein above the renal analogous to its persistence below the renal, when the appearance is given of a double vena cava, an example of which was noted during

FIG. 4.



Immediate division of renal arteries with entrance of a branch above and below the hilum on each side.

the year. The principal renal vein to the same kidney divided into two branches, one of which went to the vena cava as usual above the aorta; the other ran below it. (See Fig. 5.)

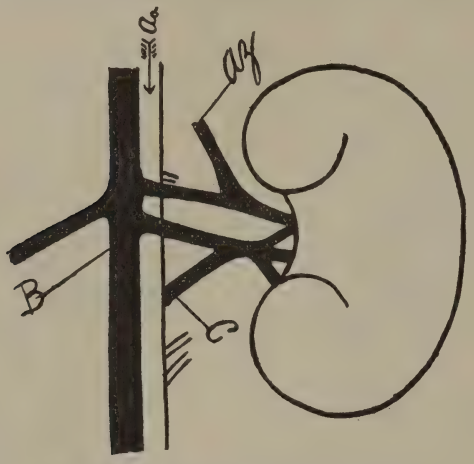
The occurrence of more than a single renal artery and of supernumerary veins to each kidney is not surprising in the light of comparative anatomy and of the morphological development of the kidneys and their blood-supply in man. Many of the lower vertebrates have multiple renal arteries. A number of arteries to the kidneys is normal in pisces and reptilia, notably in ophidia and lacertilia. Even the higher orders of reptilia, such as the alligator and the crocodile, have three or four renal arteries on each side. Aves have, as a rule, five or six pairs of renal arteries, the lowest coming from the ischiatic artery. This is an analogous condition to the anomalies reported in

man, in which an accessory pair of renal arteries come from the bifurcation of the aorta or even lower, an example of which is given above. Even some of the lowest mammals have the tendency to multiplicity of vascular connections to the kidney.

Morphologically, the occurrence of multiple renal blood-vessels is even more satisfactorily explained. For though comparative anatomy would seem to make it obvious, comparative embryology destroys a good deal of the force of the analogy with the lower vertebrates.

The many-arteried kidney of the ichthyopsida, for instance, is not the true analogue of the mammalian kidney, but is the persistent

FIG. 5.



Az, renal vein branch to azygos.
B, renal branch above aorta.
C, renal branch below aorta.
Ao, aorta.

mesonephros or Wolffian body that acts as the kidney in mammals only during the embryonic period and disappears before birth.

The same or very similar reasons lessen the force of the analogy with other classes.

The embryonic development of the kidney in man makes clear the origin of the supernumerary vessels.

Macalister[1] says the mammalian kidney is the metanephros or hinder part of the excretory organ, and it originates from a rounded mass of mesoblast from the intermediate cell-mass at that region where the dorsal outgrowth of the Wolffian extends forward to the

[1] Multiple Renal Arteries, Journal of Anatomy and Physiology, Vol. XVII, 1883.

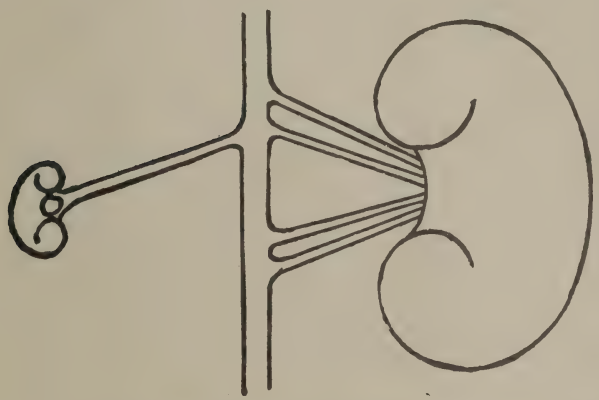
tissue behind and nearer the spine than the rest of the nephros. In this tissue the vessels originate *in situ* in the mesoblast close to those which supply the abdominal wall. These vessels close together separate at an early period, though traces of this primitive relation persist in the extraperitoneal anastomoses of the renal arteries through their arteriæ adiposæ and capsular branches.

We owe many of the anomalies of renal arteries to persistent accidental enlargements of some of these vessels.

Anomalous arteries persist rather than veins, probably because the thinner walls of these latter lend themselves more easily to developmental obliterative and specializing processes that come in the course of the growth of the organism.

A Pair of Anomalous Kidneys.—The subject was a large male,

FIG. 6.



Small atrophic kidney lobulated somewhat.
Large kidney with four arteries.

past middle life, and with tissues not emaciated by any wasting disease. The right kidney was small, dark-colored, and atrophic, looking about two inches long by an inch in breadth, with some appearance of lobulation as if the fetal type had not been outgrown. A very small renal artery and vein were present, and a small ureter that seemed only a fibrous cord. No canal was demonstrated in it. The organ was thought never to have functioned as a kidney.

The left kidney was very large, about eight inches in length and four inches in breadth and two and a half inches through. It had the white anemic appearance of the large white kidney of morbid anatomy, not unlikely produced here too by some pathological change, induced by the fact that on it was thrown the whole burden of excretion

without the alternating intervals of rest from function usual when a pair of organs are present.

It had four arteries arising in pairs about three inches apart, as sketched in Fig. 6, and two anomalous veins (see Fig. 5).

The usual order (U. A. V.), ureter, artery, vein from behind forward, was altered so that the ureter was the most anterior, the arteries posterior. The ureter was very large, but not comparatively so,—that is, not more than was demanded by the enlarged kidney.

Anomalous Ureters.—In four cases double ureters were noted; none of them, however, were symmetrical,—that is, on the two sides of the same subject. In one the second ureter was complete from the pelvis of the kidney to the bladder. (This kidney had besides two arteries and two veins.) In the bladder there was a third ureteral papilla, at which emptied the accessory ureter. It was situated along the base line of the isosceles triangle forming the trigone, and slightly internal to the normal papilla. In the other three cases the ureters double at the pelvis fused after one and a half to three inches. In one of these cases the pelvis of the kidney seemed to share in the division and was double like the ureters. In the others the accessory ureters seemed to be given off from an almost normal renal pelvis.

At first thought this doubling of the ureters might seem an unusual anomaly, but it is almost surprising that it does not occur oftener. Normally the calyces of the kidney unite into two that at the hilum open into the pelvis. The bifid character is normally maintained down to the very beginning of the renal pelvis, and its continuation farther down anomalously is almost to be expected occasionally on morphological grounds.

Precocious Puberty.

At a recent meeting of the Clinical Society of London, Campbell showed a lad, 14 years of age, who had been under observation for upward of ten years. When only 15 months old the mother had noticed that hair was beginning to grow on the pubes and that the external genitals were abnormally large; at 2 years of age they were fully developed and had not materially changed in the following years. The boy had at times manifested great sexual excitement Between 4 and 7 years of age he had frequent discharges of seminal fluid, but it had not been determined that this had contained spermatazoa. The muscular development was remarkable, the child having the muscles of a man of 25 or 30. He had been in the habit of being shaved for several years. His education was defective from failure to attend school.—*Medical Press and Circular.*

MEMORANDA.

TUBERCULIN AN INFALLIBLE TEST FOR TUBERCULOSIS IN CATTLE.

A JERSEY cow, belonging to one of my clients, some six years ago developed a persistent cough that would not respond to treatment. She was then carrying her second calf. I became alarmed at this condition of the mother and told the owner my suspicions, but, as she was milking, delayed the execution for four years, at which time she was tested with tuberculin, and gave a reaction of $2\frac{2}{5}$° F. The daughter about this time also developed a cough similar to the mother. She was also tested at the same time (about two years ago), but only reacted about $\frac{2}{5}$° F., her normal temperature being about 102° F. My client decided to kill the mother, but *not* the daughter. The autopsy revealed: Right lung entirely hepatized; a mass of cheesy degeneration with cavities here and there containing pus; air entirely occluded. Left lung: anterior lobe, one large cavity containing about one quart of pus; medium lobe, tubercles and small abscess; entirely hepatized; posterior lobe, containing some tubercles in the first stages; the pleura and entire thoracic cavity literally covered with tubercles, with some on the omentum. If I remember correctly, the liver contained two or three large tubercles. As will be seen from the result of the autopsy, the animal was doing all her oxygenating through the posterior lobe of left lung, but was in fair condition, and milking some six or eight quarts daily.

From the result of the autopsy above noted, and the fact that the daughter had been for six years the constant companion of the mother, continually breathing the same atmosphere, I concluded that she also must be tuberculous; but the owner, a physician of prominence, stood loyally by tuberculin, and refused to have her killed. About the middle of February of this year I was again requested to test her, and before and after injection the temperature registered 102° F. Fifteen hours after the introduction of tuberculin the temperature had dropped to 101° F., and at twenty-one hours had returned to 102° F. Ten days later I made another injection of a new invoice of tuberculin, and this time the temperature was the same (102° F.) as before; six hours later it had dropped $\frac{3}{5}$° F., and continued to fall until

at the twentieth hour it registered 2° below that taken before injection. At the twenty-sixth hour temperature had returned to 101⅖° F.

A few days later I destroyed the suspect. Autopsy did not reveal the slightest sign of tuberculosis in any of the organs, but the large and small bronchi in both lungs contained finely-masticated food,—in some cases packed in the bronchi very tightly, dry, and hard, occluding the air; in others, and more particularly in the larger tubes, the material was looser and mixed with pus. There was every evidence of chronic bronchitis, the bronchi being apparently irritated by this foreign substance.

From the facts noted, I conclude that tuberculin has an antipyretic action in cases where there is febrile condition in the absence of tuberculosis, and, further, a sedative action upon irritated lungs, as this subject was always easier for several days after the injection; and, still further, that the introduction of tuberculin into the bovine species is perfectly harmless to a heifer *in utero*, even though the subject is carried by a tuberculous mother; and, finally, that tuberculin is an infallible test for tuberculosis in cattle.

Louis Olry Lusson, V.M.D.

Ardmore, Pa.

CASTRATION FOR ENLARGED PROSTATE.

C. B. D., aged 66 years, farmer, was always healthy until about two years ago, when he began to be troubled with frequent micturition. This grew worse, and was finally accompanied with a frequent desire to evacuate the bowels, so that a large part of his time was spent in the water-closet. Early in July, 1895, he was unable to pass water at all, and from this time the use of the catheter was necessary. He came under my care September 27, 1895, and his condition was indeed wretched. He was greatly emaciated, no appetite, purulent urine. evening temperature 102° to 103° F., pain in sciatic regions. The prostate gland projected into the rectum as large as a lemon; it was hard and exquisitely sensitive. In spite of appropriate measures his condition continued unchanged. Castration was suggested and eagerly assented to. November 13, 1895, assisted by Dr. Remondino and Dr. Burnham, I castrated him. Surrounding both testicles were small loculated hydroceles or cysts, tensely filled with very clear fluid. The testicles seemed normal, and live spermatozoa were found. The wounds healed promptly, and in one week the patient was down-stairs. The night succeeding the operation he was catheterized but three times, as against eight or ten previously, and he slept better than

usual. The second night he was even better, and his own words were, "I haven't had so much good sleep in a year; I haven't so much pain in my legs; in fact, none at all."

On the ninth day following the operation he passed his water naturally. He continued to use the catheter at night, however, but less and less frequently, until January 11, 1896, when he got along without using it, and has not used it since. He gained nineteen pounds during December.

Thos. G. McConkey, M.D.

San Diego, Cal.

A POSSIBLE SPECIFIC FOR BERIBERI.

Dr. Carreau, of Guadeloupe (in a contribution au traitement de la lèpre, Pointe-à-Pitre, Guadeloupe, 1892), mentions the case of a Brazilian leper, bitten by a rattlesnake. The man succumbed after twenty-four hours. It was observed when he was dead that all his lepromas were enfeebled. Dr. Carreau, attributing this effect to the methemoglobinemia produced by the venom, tried to imitate the intoxication in the case of a very sick leper. He gave him enormous doses of chlorate of potassium, a salt which increases rapidly the quantity of hemoglobin of the blood, and may cause death by this same action. The patient swallowed forty-five grammes of this remedy in three doses, the highest being twenty grammes, in sixty hours. He presented the most pronounced symptoms of intoxication; his blood showed the spectroscopic bands of hemoglobin and methemoglobin. During some days he hovered between life and death. He recovered, however, from the shock, and felt a very distinct improvement in all the cutaneous surface attacked; the leonine face smoothed down, the skin which had lost all elasticity could again form folds. The treatment continued eight days.

I suggest that a remedy which has such an effect—that is, to increase rapidly the hemoglobin of the blood—may also be applied to the treatment of beriberi, a disease whose principal characteristic is the diminution of the hemoglobin.

Albert S. Ashmead, M.D.

Norristown, Pa.

ALUMNI NOTES.

A Tribute to Dr. Henry E. Turner.

Dr. Henry E. Turner, of the class of 1836, was made the recipient of a loving cup by his colleagues and the members of the Newport Medical Society on the evening of March 26, 1896, the sixtieth anniversary of his professional career. Among those present were Drs. Horatio R. Storer, Francis H. Rankin, C. F. Barker, V. Mott Francis, Mary E. Baldwin, H. G. MacKaye, Henry Ecroyd, T. A. Kenefick, W. S. Sherman, and F. J. Davis.

The presentation address was made by Dr. Storer. Dr. Turner responded feelingly.

He said that he was so much impressed with the kindly feelings, the generosity, and the friendly impulse which had prompted this action on the part of his professional associates that he could not express himself as he would wish. The expression, "sixty years in practice," he said, although seeming to many to cover a long time, yet to him the period appeared comparatively short. Could he relate, as he would like, however, the history, the memories, and reminiscences that came to his mind regarding departed professional gentlemen whom he had intimately known, he feared the truth, as expressed by his friend, Dr. Storer, would be forced upon him. He briefly referred to those whom he had known in Newport, and who had long since gone to their reward. He said a few words regarding each, placing a fragrant flower of memory upon their lives, and feelingly spoke of their kindness to him in his early days as a physician. In conclusion, Dr. Turner thanked the members of the society for their kind token, and said that as he or his descendants should look upon it in years to come it would remind them of the love and admiration which it forcibly represented, and which he, in an imperfect manner, endeavored to express.

The cup is of solid silver, and beautifully engraved, in the spaces between the handles are three inscriptions, the first of these, the presentation, in Latin:

OCTOGENARIO
HENRICO EDVARDO TVRNER
ANNIS LX LABORUM PROFESSIONA PERACTIS
HOC PIGNUS AMORIS
DIE XXVI MART. MDCCCXCVI
SOCII SOCIET. MEDIC. NEWPORT. RHODINSVLÆ
MULTIS CVM CONGRATVLATIONIBUS
CONSECRAVERUNT

In a second space is the following fitting quotation:

Filled to the lips with the ardor of youth,
With the latent power and love of truth,
And with virtues fervent and manifold.
—*Longfellow's Golden Legend.*

In the third space are the names of the donors, the members of the Newport Medical Society, and those accustomed to meet with them:

Horatio R. Storer,	H. G. MacKaye,	W. S. Sherman,
Francis H. Rankin,	Henry Ecroyd,	F. J. Davis,
C. F. Barker,	T. A. Kenefick,	C. A. Brackett,
V. Mott Francis,	S. C. Powell,	H. W. Gillett,
Mary E. Baldwin,	Peter F. Curley,	Frederick Bradley.

Dr. Henry E. Turner and Dr. Alfred Stillé were classmates at the University, both receiving the medical degree in 1836.

Recent Additions to the University's Biological Department.

The Biological Department of the University of Pennsylvania has been presented with a valuable collection of birds by William Welsh, Jr., of the class of '99. Mr. Welsh has devoted a number of years to the gathering of specimens, and in all had secured a collection of nearly 200 species, most of them being natives in or migrates to Pennsylvania. The specimens form a valuable addition to the teaching facilities of the department. The collection was formally dedicated by Mr. Harry C. Fox, '97 C., in a lecture before the Naturalist Field Club of the Biological School at its recent meeting. He spoke on "The Birds of Philadelphia and Vicinity," illustrating their habits and appearance by means of the collection.

The biological gardens have also been lately enriched by upward of 3000 seeds, representing many different plants of European countries. These specimens were secured from the principal gardens of foreign countries in exchange for seeds possessed by the University gardens. A greater part of them came from the gardens at St. Petersburg, Kew, Berlin, Lyons, Dublin, and Cambridge. This is one of the largest and most important additions to the gardens received since its foundation. A large force of men are now at work arranging the different collections, planting trees and shrubbery, laying out walks and mounds, preparing the artificial lake for the reception of plants, and in other ways getting the gardens in condition for the summer.

University Scholarships and Fellowships.

Twenty-seven new scholarships and fellowships have been established upon the income of $500,000 given to the University last June by Provost Harrison, and known as "The George L. Harrison

Foundation for the Encouragement of Liberal Studies and the Advancement of Knowledge."

Of these, eight of the value of $100 a year and free tuition are open only to graduates of the University. Fourteen fellowships of the value of $600 a year, less $100 devoted to publication or equipment, are open to the graduates of any institution, may be held for two years, and are intended for candidates for the degree of Ph.D. Five senior fellowships of the value of $800 a year may be held for three years, and are open only to those who have taken the degree of Ph.D. at the University.

These scholarships and fellowships are established under the provision of the foundation, which names as one of its purposes "the establishment of scholarships and fellowships intended solely for men of exceptional ability." The three classes under which they are divided are intended to provide, first, for graduates of the University who desire to take a year of extra study, and are divided among the principal fields of study. The second group, which, with the existing Hector Tyndale Fellowship on Physics, make fifteen, are assigned five to languages, two to history, and one each to economics, political science, philosophy, pedagogy, chemistry, biology, and mathematics.

A Valuable Collection of Portraits.

The portraits of many of the prominent physicians and surgeons who have been connected with the Medical Department of the University of Pennsylvania at different times since its foundation have been placed on the walls at Medical Hall. Probably no other single building in this country possesses the portraits of so many physicians who have made for themselves national reputations. The collection will be added to from time to time until the portraits of all the great men connected with the department have been secured.

The present collection includes the portraits of Dr. John Morgan, founder of the medical school, and holder of the first medical professorship created in America; Dr. William Shippen, who first introduced the art of "quizzing"; Dr. Benjamin Rush, Dr. Caspar Wistar, founder of the Wistar Museum; Dr. James Hutchinson, Dr. James Woodhouse, Dr. Philip Syng Physick, the "Father of American Surgery;" Dr. Thomas C. James, Dr. Nathaniel Chapman, Dr. Samuel Jackson, Dr. William E. Horner, Dr. William Potts Dewees, Dr. Joseph Carson, Dr. Henry H. Smith, Dr. Francis Gurney Smith, Dr. Hugh L. Hodge, Dr. Robert Hare, Dr. George B. Wood, Dr. William Gibson, Dr. William Pepper, Sr., and Dr. Alfred Stillé.

Appointed Assistant Surgeon to the Northern Pacific Railroad.

Dr. Colin R. Clark, of the class of 1895, ex-resident physician of the Children's Hospital of Philadelphia, has been appointed assistant surgeon to the Northern Pacific Railroad. He will locate in Brainerd, Minn., about May 1.

Received the Order of the Double Dragon.

Dr. Eli Barr Landis, of the class of 1888, ex-resident physician of the Lancaster County Hospital and Insane Asylum, has recently had conferred upon him the Order of the Double Dragon by the Emperor of China, for services rendered during the war between China and Japan. Dr. Landis is now on his way to Chemulpo, Corea, after a brief leave of absence, to resume his connection with the Church of England Mission in St. Luke's Hospital, a position which he has held since 1890. In 1892 he served as medical officer of the Royal Corean Customs Service.

Hoods and Gowns for University Graduates.

The University students will wear the new style of academic costume recently approved by the Trustees at the Commencement exercises in June. It will supersede the color system by which the degrees conferred were indicated. Hereafter the gowns will be black, and of the pattern commonly worn, with pointed sleeves for the bachelor's degree; with long, close sleeves for the master's degree; and with round, open sleeves for the doctor's degree. The material is to be of worsted for bachelor's, and silk for master's and doctor's degrees. The hoods shall be of the pattern usually followed by colleges and universities, the length and form to indicate the degree. For the bachelor's degree the length shall be three feet, and for the master's and doctor's four feet, the edging of silk, satin, or velvet, of a color to be distinctive of the faculty to which the degree pertains.

The caps shall be of the color and form generally known as "mortar-boards."

Holders of the degrees of Doctor of Medicine, Doctor of Dental Surgery, or Doctor of Veterinary Medicine will wear hoods similar in all respects to those prescribed for bachelors, save in the case of the binding or edging, corresponding to the appropriate faculties, which in the case of the faculty of medicine will be green.

Full academic costume will hereafter be required at all Commencements, University Day exercises, and at other gatherings where it may be necessary for the officers to appear in their official capacity.

Annual Election of the Houston Club Officers.

The annual election of officers of the Houston Club, held on Saturday, April 11, resulted as follows: President, John F. Sinclair, '97 M.; Vice-President, J. Henry Morice, '97 C.; Secretary, George M. Coates, Jr., '97 M. The treasurer for the ensuing year is to be appointed by the directors of the Club.

Appointed to the Staff of the Philadelphia Hospital.

At a meeting of the Board of Charities and Correction, held on April 14, 1896, Dr. Charles W. Burr, of the class of 1886, was elected neurologist to the Philadelphia Hospital, and Dr. B. Franklin Stahl, of the class of 1887, neurological registrar in the same institution.

African Pigmies as described by Dr. A. D. Smith.

Dr. A. Donaldson Smith, of the class of 1889, delivered an address before the American Geographical Society, in New York, on Monday, April 13, 1896, describing his sixteen months' journey in 1894–95 among the Somalis and Gallas from the Gulf of Aden southwestward to the salt lakes of Stefanie and Rudolf near the eastern limits of the Upper Nile basin. Dr. Smith's route passed for hundreds of miles through the country of Galla tribes, south of Abyssinia, whom no explorer had ever visited before. He therefore brings to us the first definite idea we have received of a large region, and among the many specimens of fauna he has brought home, twenty-four species are new to science. We believe that in another respect his observations are of more than ordinary interest.

Dr. Smith spoke of his visit to a dwarf tribe, some scores of miles north of Lake Rudolf, but he did not say, what we believe is a fact, that he is the first white man who has seen these little people in their homes, though there has been evidence of their existence.

Less than four years ago Dr. Henry Schlichter, of the British Museum, collated all the reports about East African dwarfs, with a view to answering, if possible, the vexed question, "Do pigmy tribes exist in East Africa, and, if so, where?" Summarizing all the reports, he found that as far back as 1826 Captain Boteler had brought information about the East African dwarfs; that when travelling in Abyssinia, Shoa, and Kaffa, Messrs. Harris, Krapf, D'Abbadie, Hartmann, and several others had heard much of the existence of pigmies in the unexplored country just a little south; and that Avanchers, Krapf, and D'Abbadie saw numbers of these dwarfs, though not in their native habitat.

All the evidence collected by Dr. Schlichter seemed to point conclusively to the existence of dwarf tribes near the southern border

of Kaffa, the southernmost part of Abyssinia, and in the neighborhood of the thirty-sixth meridian east of Greenwich. When Count Teleki discovered Lake Rudolf, he did not travel north of the lake far enough to meet the dwarfs. But Dr. Smith has done so, has seen the dwarfs, or at least one tribe of them, in their home, and has justified Dr. Schlichter's division of the pigmy tribes into the East African, Central African, West African, and South African dwarfs. Dr. Smith's brief description of those he saw confirms the previous evidence that the East African dwarfs, in size, appearance, and habits, are similar to those of the Upper Nile and Congo.

Health Officer of Atlantic City, N. J.

Dr. Walter Reynolds, of the class of 1894, has been appointed health officer of Atlantic City by the local board of health.

Re-elected Physician-in-Charge of the Easton Hospital.

Dr. Henry D. Miller, of the class of 1881, has been re-elected physician-in-charge of the Easton (Pa.) Hospital.

Moved to Denver, Colorado.

Dr. H. G. Wetherill, class of 1878, who for five years practised with his father at Lambertville, N. J., was two years on the staff of the New Jersey Lunatic Asylum at Trenton, and subsequently practised in the city of Trenton for more than ten years, has removed to the city of Denver, Col. He was consulting surgeon to Mercer Hospital, and gynecologist to St. Francis Hospital, Trenton.

Necrology.

Dr. William Hunt died in Philadelphia on April 17, 1896. He was born in this city on September 26, 1825. He was educated at a Friends' school, and at the age of 21 years he began the study of medicine in the office of the late Dr. George B. Wood. He was graduated from the Medical School of the University of Pennsylvania in 1849. He began at once the practice of his profession, and gradually adopted surgery as a specialty. In 1850 he was appointed one of the resident physicians at the Pennsylvania Hospital, continuing in this position for two years. In 1854, Dr. Joseph Leidy appointed him demonstrator of anatomy in the University Medical School, which position he held for ten years.

In connection with his other duties, in 1856 he was appointed surgeon to the Episcopal Hospital, where he served for more than twelve years. He was elected one of the surgeons of the Pennsylvania Hospital in 1863, and continued in the service of the institution

until 1893, when he resigned, having been in the service thirty years. He also served as visiting surgeon to the Wills Eye Hospital and to the Orthopedic Hospital.

Dr. Hunt was appointed during the Civil War one of the acting assistant surgeons of the United States army, and was several times ordered to the front for active field duty. His principal service, however, was in the military hospitals in and about Philadelphia. He was a trustee of the University of Pennsylvania, a fellow of the College of Physicians, a member of the County Medical Society, and the Academy of Natural Sciences, and also an ex-president of the Philadelphia Academy of Surgery, and honorary fellow of the American Surgical Association. For many years he was one of the associate editors of the "Annual of the Medical Sciences." One of the best known works of which he was the joint author was "Surgery in the Pennsylvania Hospital, being an Epitome of the Hospital since 1756."

Dr. John Sterling died in Philadelphia on April 6, 1896. Dr. Sterling was born sixty-five years ago in Ireland, and came to this country with his parents while a child. He graduated in medicine from the University of Pennsylvania in 1856, and subsequently served as resident physician in the Pennsylvania Hospital. During the war he was on the medical corps, led by Dr. W. H. Smith, that manned a receiving-station for sick and wounded soldiers on South Broad Street, in this city.

Urine in Epilepsy.

Obreja finds that the evening preceding an attack of epilepsy the toxicity of the urine is greatly diminished; but immediately after the attack it increases markedly, to diminish progressively afterwards. In the case of a criminal simulating epilepsy, he was able to detect the fraud by examination of the normal constituents of the urine. He also states that the approach of a period of excitement in melancholia or periodic insanity may be prognosticated by a diminution of the urinary toxicity.—*Universal Medical Journal.*

EDITORIAL.

GONORRHEAL ENDOCARDITIS.

Although a number of observers, including La Cassagne, Marty, Baudin, Moussons, and Desnos, long ago recognized endocarditis as a complication of gonorrhea, until recently little attention has been paid to the manner in which the inflammation of the cardiac valves is brought about by the urethral infection. Indeed, it is generally believed that blennorrhagic endocarditis is very rare, and most text-books on surgery, in discussing the differential diagnosis between gonorrheal rheumatism and ordinary rheumatism, point out that the absence of cardiac lesions is suggestive of the former. However, careful bacteriological examination of the lesions found in fatal cases of acute endocarditis indicates that gonorrhea may be a more important factor in the etiology of valvular disease than has been commonly supposed. Leyden was among the first to investigate the subject from a bacteriological stand-point. In the *Deutsche medicinische Wochenschrift* for September 21, 1893, he reports a case of chronic gonorrhea, with gonorrheal arthritis, which eventuated in an ulcerative endocarditis. Both the mitral and aortic valves were affected. In the exudation on the valves, micro-organisms corresponding in all particulars to gonococci were found in pure culture. After an exhaustive review of the literature of the subject up to that date he concludes that the relation of gonnorrhea to endocarditis is proven by a great number of observations; that a part of these cases undergo a chronic course and become partially cured; that other cases undergo a malignant change and end in death.

In the *American Journal of the Medical Sciences* for September, 1893, Councilman presents an elaborate report of a case of acute myocarditis with hemorrhage into the pericardium, occurring secondary to gonorrhea. Both knee-joints contained a purulent fluid. Gonococci were found in the secretions of the urethra and joints, and in considerable numbers in sections of the cardiac muscle. Unfortunately, the case is not a complete one, owing to the fact that cultures were not made at the time of the autopsy, the organisms being studied only in cover-slip preparations, and in the sections. As the lesions did not resemble those produced by pus organisms, or even by pneumococci, and as the clinical course of the disease, especially the

absence of fever, suggested a gonorrheal rather than a purulent infection, the writer favors the view that the myocarditis was excited by the gonococci, and not by a secondary accidental infection.

Fressel ("Endocarditis Gonorrhoica," Inaugural Dissertation, Leipzig, Edelmann, 1894) reports the case of a young woman who was admitted to the hospital in a moribund state, with all the manifestations of severe cardiac affection. It was subsequently learned that four weeks before admission she had suffered with pain in one foot, and later had developed difficulty in breathing. A post-mortem examination showed ulcerative endocarditis of the mitral and aortic valves, and gonorrheal vaginitis. An examination of the exudation on the valves revealed diplococci which corresponded closely to gonococci.

Dauber and Borst (*Deutsches Archiv für klinische Medicin*, Band LVI, 1895) report a case of malignant endocarditis following gonorrhea in a man aged 20 years. Examination of the heart on admission showed no lesions, but on the eighteenth day after the appearance of the urethral discharge, symptoms of aortic insufficiency developed. Death resulted from septic nephritis and hypostatic pneumonia. Gonococci were detected in the urethral discharge by staining. The autopsy revealed extensive vegetations and ulcerations on the aortic valves. In the vegetations were diplococci, some of which had all the morphological and tinctorial properties peculiar to gonococci, and were within the cells. No cultivation of the urethral organisms was made. Cases similar to the foregoing have been published by His, Rothmund, Winterberg, and Hering. Unfortunately many of the reports upon the subject which have appeared are unsatisfactory, since staining alone has been relied upon to identify the gonococcus. Thayer and Blumer, however, have recently published (*Archives de Médecine experimentale*, November, 1895) a case of gonorrheal septicemia with endocarditis in which cultures of the blood were carefully made during life. The authors conclude that the organism found on the valvular vegetations was the gonococcus, for the following reasons: (1) Its form and disposition were characteristic. (2) Though often free, the organism was found within the protoplasm of the leucocytes in the valvular thrombus. (3) The organism did not develop in ordinary media. (4) It easily grew on a mixture of human blood and agar (one-third blood). (5) It decolorized by Gram's method.

These cases and similar ones which have been recently reported not only confirm Leyden's conclusions, but indicate that gonorrhea may cause endocarditis either by a secondary accidental infection or, perhaps, by a direct invasion of the valves of the heart by the gonococci themselves.

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.,

ASSISTED BY

M. HOWARD FUSSELL, M.D., AND A. O. J. KELLY, M.D.

Causes and Treatment of Chlorosis.

Stockham (*British Medical Journal*, December 14, 1895), in an excellent article on the above subject, thus sums up the causes of chlorosis:

(1) Excessive menstrual loss, or more unfrequently other blood loss. This may be relative only or actually large.

(2) Insufficient ingestion of iron with food. Anything which diminishes the appetite diminishes the consumption of iron.

(3) It is possible that certain persons are born inherently weak in blood-forming power, and tend to become anemic under slight provocation. Treatment is thus disposed of:

Iron.—Clinical experience has shown that the chief remedial measure is iron. Treatment with iron ought to be continued eight or ten weeks. No one preparation of iron can be said to be better than another merely as regards iron. The choice of the preparation used should be guided largely by the condition of the stomach. Large doses are probably more efficacious than small doses.

Manganese and *arsenic* are either useless or unnecessary.

Diet.—The most easily absorbed food is the best, but as much flesh should be used as practicable, as it contains more iron than farinaceous food.

Rest in bed is absolutely necessary for the improvement of some cases which are extremely anemic.

The surroundings of the patient must be improved in order that the patient may remain well.

Typhoid Fever in Childhood.

Morse (*Boston Medical and Surgical Journal*, February 27, 1896) gives the results of a careful study of the cases of typhoid fever occurring in children under 15 years of age in the Boston City Hospital from January 1, 1882, to January 1, 1895. In all there were 284, 7.7 per cent. of all the cases treated during that time (3680). As a result of his study he concludes that typhoid fever is a common disease in childhood, but rare under 2 years of age. It occurs about as frequently in children, between 5 and 10, as in those between 10 and 15. The mortality in cases under 15 is about 6 per cent., or half that in adults. The rate of mortality increases directly with the age. The course is shorter and less severe than in adults, this as well as

the low mortality being due to the slight intensity of the intestinal lesions. The severity increases directly with the age. The onset is acute in about one-third of the cases in the first five years, and in about one-fifth of those in the second five years. Nose-bleed occurs in about 50 per cent. of all cases, and is often severe. The average duration of the fever is a little less than three weeks, being somewhat shorter in younger than in older children. The proportion of cases in which the duration is not more than ten days is twice as great in those under 10 years as in those over 10. The temperature-curve is less typical than in adults. The remittent second stage is absent in more than 50 per cent. of the cases under 10, and in 40 per cent. of those between 10 and 15. Relapses are nearly as frequent in children as in adults, and follow the same course. The tongue is rarely as dry as in adults. Vomiting is a common initial symptom, and is not very infrequent during the course of the disease. It is not an unfavorable symptom. Constipation is more common than diarrhea, especially in younger children. Distention is present in from 50 to 70 per cent. of all cases, and is more common in younger children. It is not infrequently extreme. Tenderness is present in about half of the cases, but is rarely very marked. Hemorrhage is very rare under 10 years, and much less common above that age than in adult life. It is fatal in about half of the cases. Perforation is extremely uncommon. Rose-spots are present in from 60 to 70 per cent. of all cases. The spleen can be demonstrated clinically to be enlarged in from 80 to 90 per cent. of all cases. The enlargement is usually moderate, but may be extreme, more commonly in young children. Bronchitis occurs in about 40 per cent. of all cases. In some cases it may mask the abdominal symptoms, especially in younger children. Other pulmonary complications are rare. Headache is complained of in about 75 per cent. of all cases, but is rarely severe. Marked nervous symptoms occur in at least 25 per cent., and are equally common to all ages. The condition is one of stupor in from 15 to 25 per cent., and of delirium in the remainder. The delirium is more commonly active. Crying out at night is common, especially in young children. Meningeal symptoms are not infrequent, and are more common in young subjects. Neuritis occurs probably more often than is supposed. Albuminuria is common, and occurs with equal frequency at all ages. Serious renal complications are rare, especially in young children.

The Myotatic Irritability of the Pectoral Muscles as an Early Sign of Pneumonia.

Kennan (*Dublin Journal of Medical Science*, February, 1896) reports three cases of pneumonia in which the very early presence of a myotatic irritability of the pectoral muscles on the side corresponding to that in which the pneumonia later was demonstrable—it being absent on the opposite side—is considered somewhat noteworthy. Another case in which this irritability was bilateral was first thought to be pneumonia, but subsequently proved to be tuberculosis, in which affection the development of this myotatic irritability is quite common. He believes that, if this observation can be confirmed, such an additional early sign of pneumonia would be of immense value in assisting in the diagnosis, and suggests that the muscles of respiration should just as well sympathize with the condition of the lungs as the muscles which move a joint, through the medium of the nervous system, sympathize with the condition of that joint,—this occurring particularly in acute affections or in the early stages of chronic disorder. Another analogy is found in the influence exerted over the abdominal muscles by the condition of the viscera which lie beneath them.

Syphilis *vs.* Tuberculosis.

Abrahams (*Medical Record*, December 28, 1895) reports the case of a Pole, aged 35 years, who always enjoyed good health until he began to work in the coal-mines, when he developed a cough, later profuse hemorrhage, and all the signs of tuberculosis of the right apex; the sputum contained tubercle bacilli. The general condition of the patient improved under treatment, which consisted of creosote taken in increasing doses until he took one drachm three times a day; but the lesion in the lung apparently remained unaltered. The patient was lost sight of for ten weeks, when he returned with an initial syphilitic lesion of the penis. Subsequently secondary manifestations made their appearance, and the patient received mercurial inunctions, sodium iodide, and cod-liver oil. All the secondary symptoms and traces left of the primary lesion disappeared under treatment. But what was more wonderful was that from the very start of the evolution of the secondary period and all along through this energetic specific treatment all the signs of consumption one by one vanished; night-sweats stopped; the evening fever abated; the cough and expectoration became insignificant; the appetite returned; the patient gained flesh and strength; and at the end of fifty days' treatment a physical examination revealed absolutely no trace of existing phthisis; the percussion-note was normal instead of flat; the breathing was normal in place of bronchial; all râles were gone; the sputum failed to show tubercle bacilli. The patient to-day is said to enjoy the best of health.

Ross (*Medical Record*, February 15, 1896) reports the case of a young man, aged 18 years at time of first observation (1886), who then presented symptoms of pulmonary tuberculosis. He subsequently improved, but two years later again developed all the physical and rational signs of phthisis. At the same time he acquired syphilis. Placed on iodides and inunctions of mercury, his pulmonary symptoms began to improve; night-sweats, cough, expectoration, and hemorrhages ceased gradually. At present, seven years after contracting the initial lesion of syphilis, he is well and healthy, although exposed to all sorts of weather. Was the cure of the tuberculosis due to the syphilis, the antisyphilitic treatment, or was it spontaneous?

Oxycyanide of Mercury in Blennorrhea of the New-Born.

Sicherer (*Münchener medicinische Wochenschrift*, December 3, 1895) has used the above salt of mercury in cases while he was using the bichloride in a parallel set of cases. He found the oxycyanide to cause less irritation and less precipitation of albumen, while it was an equally efficient germicide with the sublimate. He uses it in the strength of 1 to 500. The lids are separated widely and the whole conjunctival sac freely washed out. The usual instructions are given to the mother to free the sac from accumulating pus frequently, and to use ice constantly in order to prevent the formation of ulcers and their attendant evils.

The Therapeutic Value of Erysipelas in Syphilis.

Rudolph (*Centralblatt für innere Medicin*, No. 5, 1896) reports two observations, in both of which a remarkably favorable influence was exerted over the course of syphilis by an accidentally-occurring attack of erysipelas. In both cases the luetic symptoms disappeared much more rapidly than is possible by the most energetic local and general specific treatment; in the first case two syphilitic ulcers, in the second excessive lymphatic enlargement, syphilitic joint rheumatism, cerebral

symptoms (headache, paresis, and tremor of the left side of the face), above all the severest syphilitic cachexia. Case I was a man, aged 52 years, who had acquired syphilis nineteen years previously; Case II, a female, aged 25 years, infected four years previous to first observation. Case I cannot be used to endeavor to solve the question concerning the curability of syphilis by erysipelas, as the patient was seen only at the time and for a short time after his attack of erysipelas. From Case II one may judge that the curative properties of erysipelas over syphilis is not absolute, as there was a recurrence at the end of a year. The rapid disappearance of the symptoms is, however, very suggestive, but as with the ordinary specific treatment there must occur an interval without symptoms of at least three years before one can speak of a cure. This has apparently not yet been observed.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

G. G. DAVIS, M.D., M.R.C.S., AND ELLWOOD R. KIRBY, M.D.

Infections Consecutive to Exposed Fractures.

Roncali (*Il Policlinico*, December, 1895) has made an extensive study of this subject, and finds that exposed fractures in animals, left to themselves and untreated, give rise to infections ending in death.

These infections are due to one or other of the following organisms:

Pseudo-malignant edema bacillus.

Bacterium coli commune.

Staphylococcus pyogenes aureus.

Streptococcus septicus.

These organisms were found in the medulla of the fractured bone.

The bacillus of pseudo-malignant edema, according as it infects the organism *via* the lymphatics or blood-vessels, gives rise to acute or chronic affections. These are more in the nature of toxemias than septicemias. If it be localized in the tissues abscesses may result; the liver being the most susceptible of the internal organs. This probably results from its comparatively slow circulation, and also from its glycogenic function; as it is known that the pathogenic power of a germ is increased by the addition of glucose to the nutritive media.

In the medulla of the fractured bone the following appearances were constantly observed: Breaking up of the proper elements of the medulla at the site of fracture, increase of the element of the matrix of the red blood-cells, diminution of the young nucleated red corpuscles, and destruction of the giant cells.

Observations upon Relapsing Appendicitis, with a Record of Thirty-two Observations without a Death.

Cabot (*Boston Medical and Surgical Journal*, December 26, 1895) says that since his first operation done for relapsing appendicitis, in an interval between the

attacks, his experience has led him to become more and more in favor of this method of procedure, and believes, by generally adopting it, a certain portion of those cases could be saved from sudden fatal inflammation.

The operations done between the attacks, when the tissues are in a comparatively healthy state, and not already filled with micro-organisms, is free from many difficulties and dangers which surround an acute attack, and consequently its mortality is comparatively trifling. Bull's statistics put it at about 3 per cent., and probably, with improved technique and experience, this percentage can be materially reduced.

The author operated upon thirty-two cases without a death, and says it would be difficult to estimate what would be the mortality among these patients if left to themselves, to be operated upon only in cases of a severe attack. But while reckoning these to the credit of conservatism, we should put on the other side of the account these patients, not a few, who have lost their lives through pursuing the Fabian policy.

There does not seem to be any sure way in which we can separate the cases in which we are to fear acute inflammation from those that are likely to run a subacute course. The author is inclined to believe that if the patient continues to have slight discomfort in the iliac region after the acuteness of the attack subsides, that that is a case in which operation is imperative. These are the cases in which the appendix is often palpable and tender to pressure. Also the degree of severity of past attacks will guide us somewhat in judging of future ones, and if they are successively increasing in severity, an operation will appear more urgent than when they are running a steady subacute course.

It sometimes happens, on the other hand, that a severe attack will bring about a spontaneous cure, by causing an obliteration or total destruction of the appendix, so that after a very severe attack with evidence of abscess-formation, it is well to wait for further evidence before deciding that the appendix must be removed.

The diagnosis of relapsing appendicitis is usually not difficult. It happened, however, in one of the author's cases that several good observers were deceived, and the appendix was removed in case where subsequent developments showed the attacks to be probably due to irritation of the right ureter by the passage of oxalic gravel.

In most of the author's cases the appendix was found distorted, and in some instances, bent shortly upon itself and bound down by adhesions. In almost all the cases the appendix was firmly adherent, often buried between coils of adherent intestines, and very difficult of removal. In some of the cases it was deeply buried and adherent beneath the head of the colon.

The incision was made in these operations through or close to the linea semilunaris. The opening in the muscular wall was rarely over two inches in length, and there was usually no difficulty in finding and freeing the appendix. Occasionally the use of the Trendelenburg position was of material assistance in uncovering a deep-lying appendix.

The method of treating the stump was, when possible, to slip back a cuff of the peritoneal coat, and with catgut to tie off the appendix flush with the bowel wall inside the peritoneum, which was then pulled over the stump and stitched with fine continuous black silk. In all but one operation, the abdominal wall was tightly closed without drainage. In that case a small abscess was found deep below the cecum in connection with the end of the appendix.

The Mortality from Empyema in Childhood.

Marshall (*Lancet*, London, December 21, 1895) writes of the publication of the interesting statistics by Wightman, which induced him to collect the cases of empyema which have been under his care since 1879. All the author's cases have been treated by free incisions, with the exception of two, where, owing to the grave condition of the child and extent of the effusion, it was deemed wisest to relieve the chest of limited aspiration some hours before proceeding to free incisions. This he believes to be a very useful precaution. The total number of cases operated upon by him were forty-five, the deaths being seven. In his list seven cases were under 3 years of age, and of these two died, one child being 1 year old and the second 1 year and 9 months.

The method of treatment in every case may be briefly summarized as follows: Free incision, a single tube in infants, but a double-barrelled tube in all above the third year; the complete emptying of the chest for the first week twice daily by turning the child upon his side; the early removal of the tube, at the end of the first week, and allowing the patient to sit up and move about as early as possible after the first week, thus helping the expansion of the lung.

In connection with the deaths, the following facts are distinctly noteworthy:

(1) That with one exception all the fatal cases were those of effusion on the left side.

(2) In all there was a long history of illness before admission; varying from six weeks to three months.

(3) In one, gangrene of the lung was thought to exist, but this could not be demonstrated post mortem.

(4) Of the two deaths occurring in children under 2 years of age, one was the direct sequence of chicken-pox, and in both the children were rachitic to a degree.

THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D., AND ARTHUR A. STEVENS, M.D.

Paraldehyde in Asthma.

Hearder (*British Medical Journal*, March 21, 1896) confirms the statements of Mackie, published in the *British Medical Journal* of January 14, 1893, in reference to the value of paraldehyde in asthma. Hearder has exhibited the drug, with good effect, in about thirty cases of asthma, including ordinary spasmodic asthma, asthma with epilepsy, with morbus cordis, with renal disease, with chronic bronchitis, and in two cases of asthma with pneumonia.

In the majority of the cases relief was rapid and complete, and in the remainder the distress was lessened. The dose employed was forty-five to sixty minims, one dose being usually sufficient, a few cases needed a further dose of thirty to forty-five minims an hour or so later. The hypnotic effect of the drug makes it particularly efficacious in asthma occurring at night. No untoward effects were noted, on the contrary, the breathing gradually became easy and normal, the pulse strength-

ened, the patient falling into a comfortable sleep. A point in dispensing is that the addition of a few drops of alcohol renders paraldehyde perfectly miscible with water, any flavoring tincture being employed for the purpose.

Urea as a Diuretic.

Klemperer (*Berliner klinische Wochenschrift*, No. 1, 1896), having employed urea successfully in the solvent treatment of uric acid renal calculi, and observing that it increased the quantity of urine, determined to test the diuretic properties of this agent. In two cases of ascites from hepatic cirrhosis urea was given dissolved in water in the proportion of from fifteen grains to five drachms to about seven fluid ounces. Of this solution a tablespoonful was directed to be taken every hour. No untoward effects were noted, on the contrary, the ascites rapidly disappeared. A healthy condition of the kidneys is essential to its action.

The Effect of Ether and Chloroform on the Kidneys.

Eisendrath (*Deutsche Zeitschrift für Chirurgie*, Band xl, 1896) has examined the urine in 130 cases of anesthesia, – sixty from ether and seventy from chloroform. No cases were included in which there was fever, or in which the urine contained an excess of urates. Albumen was detected by heat, nitric acid, acetic acid, potassium ferrocyanide, and Spigler's test. Sediments were precipitated by the centrifuge. In eight cases out of thirteen in which there was albumen in the urine before the anesthesia there was an increase of the albuminuria, four times after ether and four times after chloroform.

Of the patients whose urine was free from albumen before anesthesia, 25 per cent. had albuminuria after the inhalation of ether, and 32 per cent. after the inhalation of chloroform. Often where no albuminuria was detected, the urine contained renal epithelium and tube-casts. Tube-casts were found as frequently after the use of chloroform as of ether, being present in 28.3 per cent. of the cases; but they disappeared from the urine more quickly after ether anesthesia.

Trional.

Scognamiglio (*Rivista Clinica e Terapeutica*, No. 11, 1895, and the *British Medical Journal*) has made a study of this substance as a hypnotic. He finds that trional has very important effects in cases of melancholia, mania, and many nervous affections; he indorses the observations of Spitzer in pulmonary affections, neuralgia, and other conditions of pain, and mentions surprising results obtained in the lancinating pains of tabes. The author quotes Claus as having found trional useful in very young children, the dose being from 0.2 grain to 1.5 grains according to the age. It seems to produce sound physiological sleep about ten to fifteen minutes after the dose. According to the writer, trional produces no bad effect on either the circulatory, respiratory, or digestive systems. Perhaps the most important point in the author's investigations is in reference to the effect of the drug upon the kidneys. It has been stated by many observers that the exhibition of trional produces hematoporphyrinuria. The author, therefore, made a series of experiments with the drug on dogs and rabbits, and also special observations on the urine of persons who were taking it. In the case of animals, a daily examination of the urine was made with negative results as regards the presence of hematoporphyrin (the dose being for dogs 0.5 to 1 gramme, for rabbits 0.1 to 0.5 gramme

per diem, the kidneys of two dogs dying during the experiments were submitted to careful microscopic examination, and in each case only hyperemia was found. On the other hand, in the case of two dogs the dose was greatly increased (three grammes per diem), till on the third day the urine was blood-colored, and showed the presence of hematoporphyrin. In the case of patients taking the drug most careful examination failed to show the presence of this substance. From his clinical and experimental experiences the author is strongly of the opinion that in trional we have a powerful and safe hypnotic when given in doses of one to two grammes per diem, and that in its action it is superior to sulphonal, chloral hydrate, and morphine, and that hematoporphyrinuria as a result is greatly exaggerated.

Nitroglycerin in Sciatica.

Krauss (*New York Medical Journal*, February 29, 1896) reports seven cases of sciatica in which nitroglycerin was employed with success. The drug was given in doses of one minim thrice daily, gradually increased, when necessary, to four minims, or until symptoms of cerebral congestion appeared. To counteract the disagreeable effects of the drug, when such effects were manifest, the bromides were used. The author does not believe that nitroglycerin will cure every case of sciatica, but that in a large percentage of cases it will accomplish more than any other remedy. The treatment of anemic conditions, diathesis, and local causes, such as pressure, must, of course, be considered and carried out in conjunction with the special treatment.

Mercury in Heart-Disease.

Murray (*Lancet*, September 28, 1895) again calls the attention of the profession to the value of mercury in heart-disease, and believes that many have not grasped the idea that the drug has a value in heart-disease far beyond what may be termed its "alterative" action. Thirty or forty years ago no one thought of treating cardiac dropsy and portal congestion except by mercurial pill followed by a saline or jalap powder and a diuretic mixture containing digitalis. Repeated observation has convinced the author that mercury possesses a value far beyond the supposed alterative nature of its action, not that it fails to relieve congested vessels by drainage or osmosis, for it would fail to relieve the heart did it not eliminate biliary and other effete matter from the blood and tissues of the liver and portal system, for instance; but when due allowance has been made for these primary effects there remains strong evidence that it tells upon the heart itself. Its special benefits are exercised in cases of dilated and hypertrophied heart. By means of it the "thready," weak, rapid, and irregular pulse is made full, soft, regular, and slow, with manifest relief of such symptoms as dyspnea, pectoral weight, and tightness, and sensation of faintness. The "angina sine dolore" is often marvellously relieved, or removed by two or three grains of blue pill three times a day, and the severe form of angina pectoris not seldom disappears under its influence. While the nitrites afford temporary relief, this remedy is much more permanent in its effects. To give digitalis a fair chance it is absolutely necessary to pave its way by preliminary doses of mercury, and to foster its action by repeated doses. Much more true is this of iron and digitalis combined. The author gives the details of a case of serious valvular disease in which digitalis and iron had been employed without relief for several weeks.

The patient was found in the following condition: Propped up in bed; countenance anxious, eyes seeming to protrude from their sockets; face bathed in perspiration; lips and skin livid; breathing shallow, frequent, and difficult, accom-

panied by a constant cough; pulse hardly perceptible, irregular, thready; heart's action tumultuous and irregular, the cardiac sounds almost inaudible, and a distant murmur could be heard with both sounds at the apex; no cardiac impulses could be felt, except a wavy movement at the epigastrium; the liver was enlarged, and the abdominal cavity was distended with fluid, as were also the lower extremities and the scrotum; the pleural cavities also were occupied to a considerable extent by fluid effusion.

It was determined to abandon the usual cardiac stimulants, and give two or three grains of blue pill thrice a day, and at the end of two days a smart purge of jalap. Greatly encouraged by the result, the blue pill (two to three grains three times a day) was pushed for a week or more, and during that time a steady relief of all the symptoms ensued; the countenance become placid, the tongue (before dry and brown) moist, and the pulse more regular, full, and soft; the dropsical accumulations gradually receded, and the breathing resumed a normal character. Now was the time for digitalis,—always best given on a falling tide in dropsy,—and doubtless the patient owed much of his rapid recovery to the temporary and occasional use of that drug; but the staple of the treatment was the steady use of blue pill, now gradually diminished to two pills a day, and finally to a five-grain pill at bedtime. The man felt himself to be quite free from all his troubles in six weeks; from this time he resumed his duties and became a useful and active member of society.

Now the point of interest in this case is that, during the next ten years, the patient stuck to his blue pill every night, with few intermissions, and declared that whenever he did leave it off for a few nights his heart began to trouble him and his breathing became difficult. As was evident from the post-mortem notes, this nightly dose was in some mysterious way enabling a heart massive with disease to discharge its duties in such a way as to make its owner feel quite well. During the ten or eleven years of his subsequent life, it is estimated that he took 20,000 grains of blue pill; it never salivated him, it neither purged nor nauseated him, and never gave his breath a touch of fetor. At last, however, his old symptoms returned, the machinery was worn out, and he died chiefly from the pressure of abdominal fluid on his enormous heart.

OBSTETRICS.

UNDER THE CHARGE OF

BARTON COOKE HIRST, M.D.,

ASSISTED BY

RICHARD C. NORRIS, M.D., AND FRANK W. TALLEY, M.D.

Funis coiled Eight Times round Fetus.

Wygodzky (*Centralblatt für Gynäkologie*, No. 48, 1895) finds that the greatest number of coils of the umbilical cord ever found to encircle a fetus are seven (Baudelocque), eight (Credé), and nine (Müller and Gray). His own case was observed this year in Wilna. The patient was a primipara, aged 20 years. The last period was seen on May 10, 1894. On February 19 the fetal movements suddenly ceased. On the 20th pains set in about two weeks before term. At noon turbid

liquor amnii escaped. At 2 P.M., on examination, Wygodzky defined a dead fetus in left occipito-anterior presentation, in the inlet, very high. The os was nearly completely dilated, the pains strong. By 4 P.M. the head was hardly engaged in the pelvic cavity. At 7 P.M. it neared the outlet at the height of each pain, but retracted immediately afterwards. After 10 P.M. the pains grew weak. At midnight Wygodzky delivered the dead child by expression. Not till then was the cause of delay clear. The funis was very tense and coiled seven times round the neck and once round the left shoulder; there was also a distinct knot. It measured over sixty-five inches in length. The fetus was a male, slightly macerated. It weighed over five pounds, and was easily delivered entire after division and unwinding of the funis. No marks remained on the neck. The placenta followed ten minutes later, and, as far as naked-eye experience could indicate, it seemed healthy.

Statistics of Lactation.

Wiedon (*Centralblatt für Gynäkologie*) has collected interesting statistics at the Freiburg Maternity. Out of 525 in childbed, only one-half could suckle thoroughly during the first two weeks. Ninety-nine secreted no milk; forty-nine had imperfect nipples; forty-six fissured nipples, and forty-four insufficient secretion of milk. Only thirty-three suckled without unfavorable complications. Wiedon groups breasts into three classes. According to the percentage of his series good breasts give 56 per cent.; medium, 21 per cent.; bad, 11 per cent. The development of the nipple bore a direct relation to the value of the breast as a secretory organ.

The Treatment of Eclampsia, based upon the Study of One Hundred and Twenty-nine Cases.

Zweifel (*Centralblatt für Gynäkologie*, 1895, Nos. 46, 47, and 48) reports his very interesting results from his study of 129 cases of eclampsia in his clinic at Leipzig. He analyzes his cases with regard to the number and duration of the paroxysms and the degree of unconsciousness present, with reference also to the period of pregnancy at which the attack occurs, and whether eclampsia develops before labor or at the beginning of or during parturition. He has also investigated the quantity of urine, the quantity of albumen, and whether blood was present in the urine. He further has observed the quality of the pulse, its frequency and increased or diminished tension, and the temperature during the attack and during the puerperal period. He describes his former view as regards treatment, which was that shared by many,—namely, that instrumental delivery should be avoided if possible, because, in spite of narcosis, the irritation occasioned by such delivery increased the number of paroxysms. He contrasts his results in former years, when his patients were treated by the expectant method, with those obtained by rapid delivery, and finds that under the former his mortality-rate was 32 per cent., while with more active measures he has reduced the mortality to 15 per cent. He prefers chloroform as an anesthetic agent in the treatment of these cases.

Pregnancy and Small-Pox.

Van der Willigen (*Nederland. Tijdschr. voor Geneesk.*, No. 11, 1895, and *British Medical Journal*), in closely observing 432 cases of small-pox in women under 50 years, made particular note of 80 who were pregnant. Of these 15 per cent. died, while the mortality of the non-pregnant cases was 11.08 per cent. Van

der Willigen, like some previous authorities, finds that pregnancy increases the predisposition of a patient to the graver forms of variola. In the 80 cases, confluent small-pox was seen in 4 and hemorrhagic in 6 cases; all the 10 died. In the 352 non-pregnant cases the confluent form was observed in 3 and the hemorrhagic in 11 patients; 2 of the confluent cases recovered. Two pregnant women died of milder forms; of the total, 12, there died 5 undelivered, the most of the others very shortly after birth without any trace of puerperal infection. Of the primiparæ, 9 per cent. died, of the multiparæ, 17.25 per cent.; 6.25 per cent. of women attacked by small-pox early in pregnancy died, whilst the mortality of those who were infected later amounted to 20.83 per cent. Abortion or premature delivery was noted in 23 of the 80 cases during the course of the attack of small pox. In 6 the same took place after convalescence from the disease; 16 children were delivered alive in cases where the small-pox was still in progress, 8 at term, and 8 prematurely; only 3 lived longer than six months. Several died of variolæ; 2 were clearly born with it.

The Vagina and Puerperal Infection.

Romme (*Archives de Gynécologie et de Tocologie*, February, 1896, and *British Medical Journal*) agrees with the newest German school in deprecating routine injections and frequent explorations in normal labors. The results of simplicity have been very encouraging. Walthard had demonstrated, he says, the truth about the vagina and sepsis. The virulence of the vaginal streptococcus in a healthy pregnant subject not officiously treated by the obstetrician and midwife is equal to that of the streptococcus of other mucous membranes; such as the alimentary canal, which lives on normal secretions. In other words, it is not virulent at all, and acts as saprophyte on healthy tissues. But when the resistance of the tissues is diminished in the vagina as in the intestine, the streptococcus can act as a parasite, and be as virulent as the special germ, of the same genus, which causes puerperal fever. Hence routine injections are deleterious in normal labor where delivery has not involved true traumatism of the tissues. Digital exploration is to be avoided, as vaginal streptococcus might be introduced into the previously-aseptic, but naturally lacerated tissues of the uterus. On the contrary, rigorous disinfection of the vagina is indicated whenever exploration or operative intervention has to be carried above the level of the os externum, and in all abnormal labors. It is also needed when the patient has an affection which diminishes the resistance of the tissues, such as nephritis, cardiac disease without compensatory hypertrophy, syphilis, diabetes, intercurrent infectious maladies, and anemia.

GYNECOLOGY.

UNDER THE CHARGE OF

CHARLES BINGHAM PENROSE, M.D.,

ASSISTED BY

H. D. BEYEA, M.D.

A Peculiar Form of Uterine Carcinoma.

Condamin, Lyons (*Gazette hebdomadaire de Médecine et de Chirurgie*, No. 3, 1895), has observed two cases of uterine carcinoma in elderly women, one 66 and the other 54 years of age, which had developed principally in the posterior wall of

the uterus without infiltrating into the uterine cavity, and therefore did not cause the usual symptoms of hemorrhage and discharge. A soft mass was found in Douglas's pouch of about the same consistency as a hematoma or inflammatory exudate. Both cases were thus diagnosed, and an attempt to open them through the vagina was made. A sero-hemorrhagic fluid with soft masses of tissue was discharged. A microscopical examination of these masses of tissue and section of the uterine wall taken post mortem showed them to be an embryonal type of carcinoma of the uterine muscle. There was no resemblance to sarcoma or epithelioma. The uterine cavity was wholly free from the disease; the tumor had developed in the posterior uterine wall.

The Principle of Applying the Sutures in Plastic Operations.

Walcher (*Centralblatt für Gynäkologie*, No. 10, 1896) states that a large number of operators in applying sutures in plastic operations do not gain the result regarding the proximation of tissues at which they aim or believe they have gained. He refers particularly to the placing of the sutures in closing the abdominal wound and in perineorrhaphy. The fault lies in the fact that the suture is introduced parallel to the wound surface, about a distance of one-fourth inch throughout the entire depth of the wound. The result is that when the suture is tied the tissue is puckered from below upward and above downward, leaving a cavity in the centre of the wound. This is shown by the suture being found much shorter than the depth of the wound when it is removed. He advises that the needle be introduced almost horizontally, making a deep sweep in the lateral wall and describing a half circle, the suture being the greatest distance from the wound edge midway between the skin or mucous membrane surface and its greatest depth. This suture when tightened proximates the wound surface throughout, and, as it does not shut off the blood-supply, secures healing by first intention; also the suture material does not cut through the tissue. Sutures should be introduced one fourth of an inch from the wound edge, and at about three-fourths of an inch intervals. If the abdominal wall is very thick, he believes the different tissues should be sutured separately.

The Pathology of the Uterine Mucous Membrane.

Uter (*Zeitschrift für Geburtshülfe und Gynäkologie*, Band xxv) reports the results of the microscopic examination of the tissue removed by the curette in fifty cases of endometritis as follows:

(1) *Endometritis following Abortion.*—In five cases he found cuboid epithelial cells, or decidual cells and connective tissue. In three of the cases a positive diagnosis had previously been made.

(2) *Gonorrheal Endometritis.*—(*a*) *Acute.* The mucous membrane epithelial cells were found destroyed, but the glandular epithelium intact. The chief changes were noticed in the interglandular connective tissue, where the cell nuclei were much enlarged and a small round-cell infiltration could be distinctly seen.

(*b*) *Chronic.* In these cases the mucous-membrane changes were the same as those seen in ordinary chronic endometritis.

(3) *Chronic Endometritis.*—(*a*) *Without Complications.* The cases are divided into two classes, those in which the glands have partially or completely disappeared and the interglandular tissue shows hyperplastic change (endometritis fungosa); and those in which the glands are apparently normal and the interglandular tissue shows a marked increase in the size of cell nuclei (interstitial endometritis).

(*b*) *Complicated with other Disease.* He here reports a case of habitual

abortion, always occurring in the first month of pregnancy, where the microscopic examination showed an enormous hyperplasia of the glandular tissue. In two cases of post-partum subinvolution of the uterus an associated acute endometritis was found. In a case of associated carcinoma of the ovaries and uterus he found a fungous endometritis.

(4) *Changes in the Mucous Membrane in Fibromyoma of the Uterus.*—The mucous membrane showed a distinct increase in the glandular tissue, with a proliferation of its epithelium. The interglandular tissue was usually normal. Uter believes the inflammation of the mucous membrane to be primary, and the development of the fibromyoma in the uterine wall secondary.

(5) *Sarcomatous and Carcinomatous Degeneration of the Uterine Mucous Membrane.*—In a case of sarcoma the glands had entirely disappeared, the cells of the growth were of different sizes, extraordinarily numerous, and were embedded in a connective-tissue stroma. A case of carcinoma of the cervix showed at the fundus of the uterus a hyperplasia of the glandular tissue, with an increase in the nuclei of the interglandular tissue. The cases of carcinoma corpores were part alveolarform and part adeno-carcinoma. These cases represent all forms of disease of the endometrium except endometritis exfoliata.

A Contribution to the Etiology of Chronic Endometritis.

Boije (*Centralblatt für Gynäkologie*, No. 10, 1896) describes his technique of making bacteriological examinations of the secretions from the cavity of the body of the uterus, and reports the results of a bacteriological examination in thirty cases of chronic endometrits. These cases do not include infection due to acute sepsis, tuberculosis, or gonorrhea. Of these thirty cases (sixteen virgins) examined, sixteen were interstitial endometritis. In thirteen of these bacteria were found in the secretions taken from the cavity of the uterus. Of eight cases of glandular endometritis in only two did the secretions contain bacteria. Of six cases of associated interstitial and glandular endometritis, bacteria were found in four. In no case were bacteria found in a small portion of endometrium removed by the curette, but from the mucus taken from the surface of the endometrial tissue bacteria were found in ten of fifteen cases of interstitial endometritis; one of eight cases of glandular endometritis; and in two of six cases of associated interstitial and glandular endometritis. In Bumm's investigations, reported at the Congress in Vienna in 1895, bacteria were found in six of nine cases of interstitial endometritis, and in seven of twenty-three cases of hyperplastic glandular endometritis. These results together show bacteria in nineteen of twenty-five (76 per cent.) of interstitial endometritis, and nine of thirty-one (28.7 per cent.) of glandular endometritis. Boije believes it is very difficult to determine positively in every case of interstitial endometritis whether bacteria are present, while in glandular endometritis it is comparatively easy. He says that in interstitial endometritis advanced and easy disease are very often seen associated. In early cases a portion of the endometrium is found perfectly normal, while the remaining portions show marked proliferation and even complete destruction of the epithelial tissue. This last is often associated with small round-cell infiltration in the stroma tissue. The proliferation of tissue is often so marked that polypi are formed on the surface, beneath which perhaps scarcely changed glandular tissue is to be seen. The entire endometrium may sometimes be seen infiltrated with small round cells, yet even in these cases the greatest change is seen towards the surface, and the most extensive destruction over small areas. The writer believes that beyond doubt these characteristic tissue-

changes must be the result of bacterial infection. The finding of bacteria in the secretion on the surface of the endometrium he believes is important, for they demonstrate that the changes described above are a result of bacterial infection; that the interstitial change in the deeper endometrium is due to the presence of bacterial toxines. In glandular endometritis the epithelial cells are, as a rule, normal. Very rarely is there any cell-proliferation; there is simply an increase of glandular tissue. It is scarcely possible that with this intact epithelium bacteria could cause this disease, and therefore Boije believes they should be excluded as a cause of glandular endometritis. From these investigations it is concluded that interstitial endometritis results from bacterial infection, and that glandular endometritis does not originate from the same cause.

PATHOLOGY.

UNDER THE CHARGE OF

JOHN GUITÉRAS, M.D.,

ASSISTED BY

JOSEPH McFARLAND, M.D.

The Protozoon of Lipoma.

Vedeler (*Centralblatt für Bakteriologie und Parasitenkunde*, Band xix, No. 8, p. 274, February 28, 1896) found in lipomata, which he examined after fixation in bichloride of mercury, removal of the fat with ether, hardening in alcohol after the fat was completely removed, and staining with hematoxylon and rosin after embedding in paraffin, bodies which somewhat resembled the nuclei of endothelial cells, but which, when seen near the periphery of the tumor, appeared as round violet bodies as large as sixteen μ in diameter, but sometimes smaller than an erythrocyte. They are found within the capsules of the fat cells, and have a definite blue-black circumscribing membrane separated from the more opaque contents by a clear zone. Some were found in every section. They have a whitish glitter as if containing fat, but do not change at all under the action of ether. Hydrochloric acid decolorizes them but does not destroy them.

The smallest found were about twenty μ in diameter. The surrounding membrane was very delicate, no nucleus could be observed. The protoplasm consisted of an amorphous mass in which darkly-colored points became prominent. These were surrounded by a clearer zone, and the little bodies were regarded as spores.

The writer concludes that lipoma is not self-existent, but, like carcinoma, sarcoma, myoma, and other tumors, caused by the irritation produced by the growth of parasites within the body cells.

The Culture of Ameba upon Solid Media.

Beyerinck (*Centralblatt für Bakteriologie und Parasitenkunde*, February 28, 1896, Band xix, No. 8, p. 257) reports the successful cultivation of three ameba upon solid artificial media. The observations were made first in connection with experiments upon nitrification, the original culture media being prepared as follows: Agar-agar dissolved in distilled water is filtered and solidified in a thin layer in an

Erlenmeyer flask. Distilled water is now poured upon it and allowed to remain for a few days, when it is poured off and renewed. This renewal is made several times. In a week or two, depending upon the thickness of the layer, enough of the soluble organic substances will have been removed from the agar-agar to make possible the growth of the nitrite ferments. The water is poured off and the agar-agar mass mixed with the appropriate nitrite-producing substance ($NH_4NaHPO_4 + 4H_2O$ being that most strongly recommended as not attacking the agar-agar or giving opportunity for the formation of soluble organic salts; one-fifth per cent. is recommended) and pure, precipitated carbonate of calcium, and boiled again until the bacteria, which accidentally enter with the chemicals or remained from the macerating water, are destroyed. The clear mixture is then filled into glass dishes with ground lids and is excellent for the growth of the nitrifying ferments, allowing the most luxuriant development of several characteristic soil and water bacteria.

The original observations were made with earth. A small quantity is secured, mixed intimately with water, well shaken up, then poured upon the surface of agar-agar contained in one of the boxes. It is also shaken up in the box, then carefully poured out and measured so as to determine how much has remained upon the agar-agar. As the agar surface is homogeneous, the distribution of the germs is about equal, and in a few days the colonies of the nitrifying bacteria can be seen by the naked eye, the typical appearance being a pale border zone which surrounds the colony, occurring from the formation of sulphuric acid. As soon as the colonies of the nitrifying bacteria are visible, one is generally able to find with the lens granular areas upon the surface of the agar-agar. These consist of ameba. The ameba prey upon the bacteria and soon spread over the whole plate. It was found that they could be transferred to new plates, provided that the bacillus acetrius or other micro-organisms upon which they live were also transferred with them. Two species—ameba nitrophila and amebazy mophila—are described and some interesting facts regarding their sporulation, division, etc., brought out.

Protective Substances in the Blood of New-Born Infants.

Fischl and Wunschheim (*Zeitschrift für Heilkunde*, 1895, Band xvi, pp. 429–482) summarize an interesting and exhaustive investigation upon the protection afforded infants against specific diseases by antitoxic substances normally present in their blood, as follows:

(1) The blood-serum of the new-born infant exerts no bactericidal influence upon the diphtheria bacillus.

(2) The blood-serum of the new-born infant does not attenuate the virulence of diphtheria bacilli exposed to its action.

(3) The blood-serum of the new-born is capable of preventing, in the great majority of cases, by separate injections of diphtheria cultures and the serum in corresponding doses, death from diphtheria in susceptible animals.

(4) The blood-serum of the new-born is also capable of protecting, by separate injections of proper doses, guinea-pigs against the diphtheria toxine.

(5) By ascending doses of serum the convalescence from the effects of infection and intoxication is increased in percentage and shortened in time.

(6) Direct mixture of the toxine and serum in a glass and its injection under the skin of the abdomen of guinea-pigs produces no symptoms of disease in certain cases, but in the greater number of such experiments the animals die with typical appearances of intoxication.

(7) Whether the result just described depends upon the irregularity of action

of mixtures of the serum and toxine or upon other accidental or unknown conditions, future experiments must show.

(8) The greatest protective strength of the blood-serum of the new-born infant is the same as Wassermann found for the adult (one-twentieth normal unit per cubic centimetre), and the frequency of the occurrence of protective substances in the blood of the new-born is in the same ratio as that found by Wassermann for the adult.

(9) That the protection manifested by the serum is not a *general peculiarity* of the serum is shown by the negative experiments in which the same quantities of serum were used.

(10) In what manner the activity of the serum manifests itself in the animal body the present status of knowledge upon immunity is not in condition to answer.

The Preservation of Gross Morbid Specimens.

Melinkow-Raswedenkow (*Centralblatt für allgemeine Pathologie und pathologische Anatomie*, January 31, 1896, Band VII, No. 2, p. 49) says that in the ordinary methods employed for the preservation of gross morbid specimens the tissues are so discolored or decolorized and shrunken that the natural picture of diseased alterations is changed to an artificial dissimilar one.

In order to prevent such undesirable changes in specimens for permanent preservation, it is suggested: (1) To preserve the fresh tissue in pure formalin. In the formalin it is true that the tissue is decolorized a little, but the histological elements are fixed. (2) After removal of the formalin the tissue is placed in 95 per cent. alcohol, which brings back the color again in part. (3) The permanent preservation and final recall of the color and normal appearance is secured by a solution of acetate of potassium 30, glycerin 60, and distilled water 100.

The method is not so well adapted for the preservation of the large organs as for the smaller ones, such as the kidneys and spleen. When the liver or other massive tissues are to be preserved, it is suggested to cut them into disks.

The Preservation of Virulent Cultures of the Streptococcus.

Petruschky (*Centralblatt für Bakteriologie und Parasitenkunde*, Band XVIII, No. 16, p. 551) recalls a former statement of his that the only way to retain the virulence of a culture of streptococci was to transplant it to new culture-media every day. The virulence of attenuated cultures can be increased by continual passage through the bodies of animals.

There is, however, a very simple method of retaining the virulence of the organism without changing the culture media,—viz., the proper use of refrigeration.

In the summer of 1894, Petruschky placed his cultures in charge of a friend during a four weeks' vacation, and placed in the ice-chest one culture of streptococci which much interested him. At the end of the four weeks this culture was not only vital, but had retained its virulence perfectly. Experimentation followed this observation, and now Petruschky allows his cultures of streptococci in gelatin to grow for two days, then habitually stands them in the refrigerator, and finds that their vitality and virulence remain undiminished for months.

MISCELLANEOUS.

WILHELM MEYER MEMORIAL.

In the death of Professor Wilhelm Meyer, which recently occurred, the profession of medicine has lost a brilliant, useful, and greatly appreciated member, and the world at large one of the leading and most practical philanthropists of the time. It is a familiar fact that Professor Meyer's recognition of the condition known as adenoid hypertrophy at the vault of the pharynx, the clear and urgent warning which he gave as to its dangers, and the efficient means which he devised for its prompt and easy cure, have been the means of bringing relief to hundreds of thousands of suffering patients throughout the civilized world. It is safe to say that no man of his time has conferred so great an obligation upon the rising generation of the last twenty years.

In recognition of his great service to humanity, it has been determined to erect a monument to his memory in his native city, Copenhagen, Denmark. To this end committees have been formed in all the principal countries of Europe for the purpose of raising the necessary funds. A large and influential national committee, representative of all the leading sections of this country, has been appointed, and power given to each member of it to make such local arrangements as in his judgment shall best secure the success of his work. It is hoped that all who have profited by the results of Dr. Meyer's teachings, not only of the medical profession, especially in the departments of laryngology, otology, and pediatrics, but also among the laity, will be willing to aid in the accomplishment of the object for which the committee was formed.

I have been requested to represent the national committee in Philadelphia.

HARRISON ALLEN.

1933 CHESTNUT STREET, PHILADELPHIA.

DEATH OF DR. VULLIET.

DR. VULLIET, Professor of Obstetrics and Gynecology in the University of Geneva, died on March 1, 1896. He had been nominated as president of the International Congress of Obstetrics and Gynecology, to be held in Geneva, in September next.

SIXTH ANNUAL MEETING OF MILITARY SURGEONS.

The sixth annual meeting of the Association of the Military Surgeons of the United States will convene in Philadelphia on May 12, 13, and 14, 1896. The registration committee will have headquarters at the Hotel Walton. An interesting programme has been arranged.

AMERICAN ACADEMY OF MEDICINE.

The twenty-first annual session of the American Academy of Medicine will be held in the "Dancing Hall" of the Hotel Aragon, Atlanta, Ga., on Saturday, May 2, and Monday, May 4, 1896.

Charles McIntire, *Secretary.*

Easton, Pa.

BOOK NOTICES.

The Pathology and Treatment of Venereal Diseases. By Robert W. Taylor, M.D., Clinical Professor of Venereal Diseases at the College of Physicians and Surgeons (Columbia College), New York, etc. Philadelphia: Lea Brothers & Co., 1895.

Dr. Taylor is well known to the profession as one of the authors of a similar work by Bumstead and Taylor, which passed through several editions, as well as from numerous other valuable contributions to medical literature. The present work may be considered a revised and modernized edition of the one above referred to.

The author recognizes three distinct forms of venereal disease, —namely, gonorrhea, the chancroid, and syphilis.

Recent studies in gonorrhea have resulted in a marked revision of many of the older views. The etiological relation of the gonococcus having been established and its morphology and staining characteristics described, we seemed to have a positive means of diagnosis at command, and a method by which we would be able to determine positively when a cure was effected. Now we learn that there are a number of species of diplococci, some of which simulate the gonococcus accurately in appearance and in staining qualities. The author says, therefore, that morphological identification of the gonococcus without cultures is apt to be fallacious, and, further, that it is impossible to determine when gonococci have disappeared from the urethra by the microscope alone.

The etiology of gonorrhea is discussed at considerable length.

The author is opposed to the views held by Neisser and some other writers that the gonococcus is the cause of the so-called gonorrhea in every instance. He says, "Other micro-organisms also give rise to urethral suppuration, sometimes as violent and as much complicated as true gonorrhea." He states, however, that these cases are unusual. Many authors are quoted in support of the view which Dr. Taylor accepts that a man may acquire a typical case of so-called gonorrhea from a woman who has never had the disease. Both sides of the controversy are impartially set forth, from which it is possible to arrive at but a single conclusion, which is that the etiology of gonorrhea is still not definitely settled.

In the treatment of the disease the author adheres to the older methods in preference to the many new plans proposed in recent years. He is rather inclined to undervalue the so-called "antiseptic" treatment. The abortive treatment, he says, is applicable to a certain class of cases seen early in the disease. The rare forms of the disease as it affects other portions of the body are described.

Dr. Taylor has devoted 460 pages to the consideration of syphilis. The subject has been very carefully and comprehensively presented. Beginning with general considerations as to the nature, evolution, and course of the disease, and ending with the lesions of the placenta, no phase of the affection seems to have escaped mention.

The author very properly does not begin treatment in syphilis until the appearance of the secondary stage makes the diagnosis beyond the possibility of doubt. There are certain exceptions to this rule which he mentions. The continuous or "tonic" treatment is that which is advised. He expresses a preference for the protiodide of mercury, one-sixth of a grain in pill form.

Dr. Taylor's name is sufficient guarantee of the authoritative character of the work. It is well illustrated with numerous plates, many of which are in colors.

Remote Consequences of Injuries of Nerves and their Treatment: An Examination of the Present Condition of Wounds Received, 1863–65, with Additional Illustrative Cases. By John K. Mitchell, M.D., Physician to St. Agnes's Hospital; Assistant Physician to the Orthopedic Hospital and Infirmary for Nervous Diseases; Lecturer on Physical Diagnosis in the University of Pennsylvania. Philadelphia: Lea Brothers & Co., 1895.

The purpose of the present volume is to inquire into the remote consequences of wounds and injuries of nerves. The cases which naturally form the basis of the inquiry are those which were observed in the wards for diseases of the nervous system of the United States Army Hospital, Turner's Lane, Philadelphia, which were reported, in 1864, by Drs. Weir Mitchell, Morehouse, and Keen in their memorable book on "Gunshot Wounds and other Injuries of Nerves." In 1872 Dr. Weir Mitchell published a work on "Injuries of Nerves and their Consequences;" the present volume may therefore be looked upon as

a legitimate successor to it. Besides the cases reported in the publications of Dr. Weir Mitchell already mentioned, the author has added accounts of the results of a number of other cases of wounds received during the war. Some of these cases are from pension bureau records, some from the unpublished notes of the United States Army Hospital, and a few were seen personally by the author.

The effort to secure accurate information as to the present condition of patients injured thirty years ago must have involved prodigious labor and wellnigh exhaustless patience.

The subject of the first chapter is contusions and commotions of nerves. Fourteen illustrative cases are reported. It is singular what severe consequences may follow from apparently trifling injuries.

The second chapter is on sections of nerves, and is illustrated by thirteen cases. The third chapter is on incomplete section of nerves. Eleven cases are reported. The fourth chapter on ascending and migratory neuritis is a very interesting one. The author inclines to accept a special toxemia as the cause. Pressure is a frequent factor, and the larger nerve-trunks are more prone to spreading inflammation after injury than small ones. As in some of these cases serious disease of the cord is the final result, the prognosis needs to be guarded.

In Chapter V the author reports a group of miscellaneous cases. In Chapter VI he discusses degeneration and regeneration of nerves, maintaining that the former must precede the latter.

The book is both interesting and valuable; it fills up a gap in our knowledge of nerve injuries, and at the same time makes us wish that some one equally clever would undertake the task of telling us the remote consequences of operations for adenoid growths in the naso-pharynx, for removal of the uterine appendages, and many other operations.

The Physicians' Vade Mecum. By Drs. S. J. and T. S. Parson. Philadelphia: The Medical Publishing Co., 1895.

That such a book as this is written argues that it is at least expected to sell. Any doctor who buys such a volume for use convicts himself of unfitness.

It is but little more than a mass of definitions and prescriptions. Both the definitions and the prescriptions are markedly incomplete and inaccurate. One who is unable to practise without the aid of such books cannot practise intelligently under any circumstances. About the only use one can imagine for such a book is its employment in cramming for an examination.

Why men will persistently publish such books simply to get their names before the public is more than the reviewer kens.

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JUNE, 1896.

ON THE EXCEPTIONAL EFFECTS OF BROMIDES.[1]

By S. Weir Mitchell, M.D., LL.D.,
Philadelphia.

The ordinary or excessive use of bromides sometimes occasions symptoms which are familiar in their milder expressions, but which, I am sure, are rarely seen in their more interesting and aggravated forms; or, if so seen, are not always suspected to be due to the use of these salts.

In certain people these rare and extreme results are not due alone to the bromides. The prodromes, or the consequences, of an epileptic fit may, because of the bromides, be intensified even in those whose attacks are being lessened in number. This, I am sure I have seen, and I have several times had remarked by the nurse, or the patient's relatives, that the irritability so often seen before or after a fit was the worse for bromides.

Menstruation admits of the same comment. The curve of irritability or melancholy being sometimes higher at this time in epileptics under free use of bromides.

Trauma affecting the brain, as from fractures or internally caused lesions, may give us to see excessive displays of bromic influences causing bad temper, suicidal or homicidal tendencies, temporary delusions. Cases of necrotic changes, from emboli or thrombi, may be thus responsible for unusual bromic effects; but it is to be remembered that of all the mental symptoms evolved by bromides irritability alone is common, and the rest exceptionally rare.

Most people take the usual doses of bromides without other ill

[1] Read before the Association of American Physicians, May, 1896.

effects than acne, roughened skin, and excess of urine, especially if it be the lithia salt which is used.

Dr. Da Costa calls my attention to the fact that, although ordinarily these salts do not disturb the circulation, they may do so when certain functional failure of heart-force exists. He says, "I have been struck with the fact of the depressing, and even serious, effects in those who have weak hearts, and especially the form of cardiac weakness designated as chronic cardiac asthenia. The action of the heart becomes distinctly feebler under the continued, decided use of bromides, and sweats are apt to break out; all of which symptoms disappear when their employ is discontinued."

In a few patients even moderate doses occasion the paretic symptoms always seen soon or late in such as are using immoderate amounts of these agents.

One of the earlier physical effects, as Dr. Rudisch, of New York, has pointed out to me, is a tendency to ptosis; the lids fall more than is common, the eye space is narrowed. Next comes increasing paresis of all the limbs, even to inability to walk, and this feebleness may be so much more notable on one side as to look like a hemiplegic condition. As the weakness increases, the spinal muscles are affected, and, for a time, the spinal curves are altered and to sit erect is difficult. The pupils are moderately dilated. On the side of the mind, there is failing memory, difficulty as to fixation of attention, hebetude, and so, at last, a general condition like that of some partial imbeciles.

With paresis there may be indifference as to body habits, or the sphincters may be so relaxed that the feces or urine cannot be retained. This extreme state of things we rarely see, but now and then accident or reckless lay use of the drug in question gives an opportunity of the utmost interest.

I saw, in 1887, a child of 15 years, long subject to Jacksonian epilepsy ending in general convulsions. The father, an apothecary, determined to suppress the disease by the use of bromides. "If," he said, "a drachm a day holds the fits in check, two or more should put an end to them." On this theory he increased the doses to 150 grains a day. After ten days of this treatment I saw the child. She was unable to stand, and when seated, her head dropped forward, and she remained, as the mother said, "all of a heap." The eyes were a third open, the pupils large, the sphincters relaxed, and the saliva flowed from the fallen jaw. As to her mind, she was quite imbecile, hard to arouse, and stupidly indifferent. The general convulsions had ceased, but the lesser fits were quadrupled in number,—a not rare incident. A few days without bromides entirely restored her to nor-

mal conditions of body and mind, and the state of partial idiocy was exchanged for normal condition of rather unusual intelligence.

I saw, many years ago, and at nearly the same time, in my wards at the Infirmary for Nervous Diseases, two children, each of whom took daily, owing to a mistake of the nurse, nearly 100 grains a day of lithium bromide. I had just introduced this bromide into medicine, and was giving it to all the cases to which previously potassium bromide had been given. These two children were between 10 and 13 years of age, and were both cases of mild epilepsy. In a few days both were brought into a condition of extraordinary feebleness of mind and body. Memory was impaired in both, so that one forgot the letters of the alphabet, and, of course, could no longer read; the other had some curious confusion as to the time of events,—misdating them. My visit, she declared to the nurse, was made the day before, although I had just left her bedside. Her dinner, she said, had been taken early that day, and yet the tray was still before her. Her memory of events was, if not sharp, at least such as to enable her to recall all things of recent occurrence, but she never succeeded in relating them correctly to the time of week or day.

This interesting state of altered memory was naturally of brief duration, passing away within two days after the bromides were withdrawn. In both of these cases the weakness was very great; both could stand, swaying somewhat, but neither could walk. When this was attempted they both fell to the left, the left leg being manifestly worse than the right, as is often the case in drunkards, some of whom are often more drunk on the left side than on the right.

There are a few cases in which bromides (sixty grains daily) occasion at first a mere depression of spirits, as we say, which, save in rare cases, is not lasting. Now and then we find people who do not bear any effective dose of bromides, and who are in a state of moderate melancholia so long as we give the drug. In a still smaller number the effect of each dose is felt in a deepening of the sadness.

In exceptional cases this influence may rise to the grade of danger and occasion suicidal impulses. Of this I saw, a few years ago, a strange example. A lady, the wife of a physician, consulted me as to long continued sciatica. She had had, four years before, three severe convulsions while nursing her last child. Ever since she had continued to take sixty grains daily of mixed bromides, being in constant dread of another attack. The medicine did not trouble her, nor was there the least sign of acne. She was, at this time, about 47 years old, and was becoming slightly irregular as to the time of menstruation. Within a year she had begun to be intensely depressed at, before, or a few days after the menstrual onset. Of late this

recurrent melancholy was such as that for four days at the beginning of the flow she had suicidal impulses. The mid-interval was, she assured me, free from this distress of mind. About this time she reluctantly confessed to the constant use of bromides, which I induced her to abandon. To her surprise, the next period, which came two weeks after disuse of the drug, was nearly free from melancholy, and the next entirely so. These abrupt endings of any type of melancholy are rare, but still clinically possible. However this may be, the melancholia was seen no more for a year. Then, while suffering from temporary loss of sleep, she was given for three or four days ninety grains a day of some bromide. It plunged her into deep melancholy, although she was not at the time menstruating. The drug was abandoned and the symptom went with it. The dose was larger than that which with the menstrual crisis had before seemed competent to occasion melancholy.

I have seen other examples of grave melancholy from bromides in males, as well as in females, and in one notable case of bromic habit a very intense melancholia with a face so sombre as not easily to be forgotten.

It is far more common to see irritability of temper occasioned by bromides. In old epileptics it is laid to the score of the disease, but that it is not always of this parentage is a matter worth remembering in extreme cases.

I know of several cases of old epilepsy in which the families of the sufferers came to understand that the bromides were the causative factors in giving rise to states of irritability, abruptness of manner, or peevishness in persons by nature gentle and amiable. When the outbreaks of temper were extreme in these cases, it was customary to stop the bromide for a week, and to take the risks of an attack for a time at least.

Last year I saw in my clinic service two young epileptics (both boys) who were what their parents termed "ugly-tempered" while using bromides, apt to break things, short of temper, "sudden-like," was the description given of one of them.

This tendency to destructive outbreaks with unrestrained violence of temper does, in a few people, rise to the danger-line.

Ten years ago I was consulted as to an epileptic lad, the son of a physician, who could not take bromides a week without becoming homicidal. I disbelieved the account given me, or rather thought some mistake might have been readily made in an epileptic as to the cause of these outbreaks. I was reluctantly permitted to give forty-five grains a day of potassium bromide. The experiment came near to resulting in a tragedy, and I became amply satisfied.

Another case of like nature, also an epileptic, was seen in a young and sturdy farmer. All use of bromides had to be laid aside. If he took them he began within a week to be both irritable and depressed; later, the melancholy lessened and the irritability rose to conditions of unrestrained anger, often upon the slightest provocation. If the bromides were still further pushed, this man grew sullen and dangerously homicidal.

I saw a case much like this a few years ago while acting as consultant to the City Hospital Insane Wards. The sufferer was a partial dement from years of epilepsy, but under bromides became violent and dangerous. No doubt the asylums could tell us of other and similar cases.

My friend, Dr. Draper, permits me to relate a case within his experience. A lady in middle life, ill in Paris, was seen by Charcot and Brown-Séquard on account of some disturbance of general health and loss of sleep. Very soon she became excited, and soon after so wildly maniacal as to give rise to the gravest prognostications. Her friends in this country heard by cable of her state. Dr. Draper promptly asked if she were taking bromides. She had been, but they had been laid aside by Charcot's suggestion. In a few days she was well. Dr. Draper's previous experience of the case enabled him to suggest the cause of this sudden mania.

Hitherto I have spoken of these unusual effects of bromides in the healthy, or in those who have no more pronounced lesions than the ordinary types of epilepsy present. Occasionally persons who have had emboli, or destructive necrotic processes about clots, or from thrombosis, or those who have had traumas show extraordinary susceptibility to bromic influences of unusual nature.

The worst case of almost sudden bromic toxication I saw years ago in consultation. A young man had rheumatism, heart-disease, and multiple emboli, one in the middle cerebral artery on the right side. After a perilous rise of temperature it fell to 100° F. for two weeks, with increasing evidences of destructive irritative changes in the brain. At this time one drachm of potassium bromide used daily for three days resulted in acute mania. It was laid aside, and only when used anew had I the suspicion that my drug was to blame. A third experiment satisfied me.

I have seen but of late an intelligent and able engineer, who was so injured during a railway accident as to become palsied on the right side and comatose, until relieved by trephining and the removal of depressed bone and a small spicula of bone which penetrated the brain about one-fourth of an inch at the anterior parietal margin.

A skilful operation was followed by swift and entire recovery.

Living at a great altitude, and subject always to neuralgic headaches, he now began to sleep badly and to have severe headaches. For this insomnia he took without orders a bottle or two a day of some proprietary stuff known as bromoseltzer. The amount thus taken could not have exceeded eighty grains a day. His very competent physician at this time, learning of the habit, told him to give up the bromoseltzer, and later, under the impression that he had obeyed orders, prescribed the use at bedtime of a small dose of chloral with thirty grains of potassium bromide. Meanwhile, with increasing irritability of temper came lessened capacity to manage affairs. Then at times he became violent and threatening and at last even dangerous. It was thought well that he should live at a lower elevation, and with this in view he was sent hither and put under the care of Dr. John K. Mitchell.

To get a full knowledge of his condition all drugs were laid aside, and we then learned that despite his physician's orders he had continued to take bromides in excess. A week after he ceased to take them he was freed from all the distressing symptoms which we and others naturally put to the credit of the cerebral lesion. He was no longer irritable; he became, as he was before the accident, amiable and merry, and has been able to write long letters and to discuss and decide matters of business. Those who know him best can see little difference between his present condition and that with which they have been familiar in past years.

It should be said that this excitability could be as easily and more quickly awakened by the smallest amount of alcoholic stimulus or any large use of tobacco.

Escheverria was the first, I believe, to call attention to the fact that bromides are competent to give rise to suicidal and homicidal impulses.

Pneumococcus Abscess following a Local Lesion in the Course of Pneumonia.

At a recent meeting of the Société de Biologie, Zuber (*Semaine Médicale*, 1896, No. 4, p. 27) reported a case of pneumonia in which an abscess developed at the site of puncture made in injecting caffeine benzoate subcutaneously. The pus evacuated contained pneumococci in pure culture, as shown by direct examination, by culture, and by inoculation in guinea-pigs. This observation illustrates the relation between a point of lower resistance and a constitutional disorder of infectious origin, due to a local lesion with localization of the infective micro-organisms.—*Medical News.*

SUPPRESSION OF URINE OF LONG STANDING WITHOUT SYMPTOMS OF UREMIA.[1]

By Wharton Sinkler, M.D.,

Philadelphia.

It would seem at first thought that complete anuria would inevitably be followed within a day or two by decided uremic symptoms. This, however, is not the case, except in those instances in which diseased kidneys which have been gradually excreting less and less urine, so that urea and other excrementitious products have been steadily accumulating in the economy. In such cases, when complete suppression occurs, the patient falls speedily into a state of uremia. In hysteria, suppression of urine is not an unusual symptom, and the length of time during which no urine is voided varies from days to even weeks. In hysterical anuria there are no symptoms of uremic poisoning, and the explanation may be found in the fact that tolerance is established through the supplementary secretions from other organs, —the skin, lungs, and intestinal tract.

Complete anuria may result from a variety of causes, and it is interesting to note that when it occurs frequently there is not occlusion of both ureters, or even disease of both kidneys. Spallitta[2] has experimentally produced total anuria in dogs by ligating one ureter, and he regards the arrested action in the other kidney as a reflex phenomenon. This is probably occasioned by vaso-constriction of the renal vessels induced by a lesion of the splanchnic nerve. The most frequent causes of suppression of urine are calculi blocking the ureters, malignant disease causing obstruction of the ureter by pressure or otherwise, scarlet fever, diseases of the kidneys, such as abscesses and cystic degeneration, and hysteria. Among the rarer causes are mercurial or cantharidis-poisoning, cholera, measles, and diphtheria.

A considerable number of cases of complete anuria have been reported in which the suppression lasted for periods varying from four days to two months. A case in which anuria persisted for two months was one which was reported by Dr. Bailey.[3] The patient was a girl of 13, an inmate of an orphanage. When first seen the child was vomiting continually, and the urine had been scant for a few days. On October 10 no urine was passed, and there was complete suppres-

[1] Read before the College of Physicians of Philadelphia, April 1, 1896.
[2] La Sicilia Medica, No. 1.
[3] Charlotte Medical Journal, 1895.

sion from this time until December 12, when eight ounces of urine were passed. During this interval there was continual vomiting. From December 12 until February 1 there was again an interval of total anuria, and eight ounces were again voided. Another period of suppression followed, lasting until March 1, when the patient passed a small quantity of urine, and then scant but regular secretion followed. The patient finally recovered. The vomiting was so persistent that the child had to be fed by the bowel, and she became much emaciated. The doctor who reports the case says that the child was carefully observed during the whole time, but the case is so extraordinary that one cannot help thinking that there was some deception.

In suppression of urine from obstruction, the patient, as a rule, does not appear at first to be ill, and uremic symptoms may not develop for a week. Death generally ensues after twelve days.

It has been my fortune to see two cases of complete suppression of urine, one lasting six, and the other nine and a half days. The first case I reported in the *American Supplement of the Obstetrical Journal of Great Britain and Ireland,* December, 1878. The patient was a child of 4 years, who had just recovered from an attack of scarlatina. For a few days there had been a slight diminution in the amount of urine passed, but on the day before I saw her she seemed as well as usual. On the following morning she passed one-half ounce of clear blood from the bladder. Four days later two ounces of thick bloody urine were passed. Nothing more was passed from the bladder until the morning of the sixth day, when four ounces of clear urine were voided. This urine contained about one-third albumin, and under the microscope blood, granular and hyaline casts were seen in large numbers. The patient made a rapid recovery after this and is now living,—a strong and healthy young woman.

During the six and a half days in which there was suppression of urine there were no evidences of uremia. The patient was bright and happy most of the time, and slept quietly and without stertor. The bowels were kept loose, and the skin was made to act freely by vapor baths and diaphoretics.

The other case was Miss A. B., aged 63 years, who consulted me early in December, 1894. She stated that she had always enjoyed good health, with the exception of an attack of ptomaine-poisoning from eating cream-puffs three or four years before. She was quite ill at the time, and for several months suffered ill effects from the poisoning. For seven years she has had more or less pain in the left hypochondrium, but it was not severe enough to cause much annoyance. Six months before seeing me the pain increased in severity. It was dull, and more or less constant, and never acute or paroxysmal.

It was attributed to indigestion, and remedies had been given with a view of relieving gastric symptoms. She had a good family history, and was a well-preserved woman for her age, with a good color, and was well nourished. She had lived in a malarious region, but there was no distinct history of intermittent fever. The menopause occurred at 50 years.

An examination showed no swelling or tenderness in the region in which she complained of pain. There was some distention with gas, but this was not excessive. Her bowels were regular, and her appetite fairly good. There was some discomfort after eating, and there was usually more pain in the left hypochondrium after a meal than before. There was no bladder irritability. I asked for a specimen of urine, and when it was obtained the patient expressed surprise at its appearance. It was dark-red, evidently containing a large quantity of blood. The patient declared that she had never before observed any evidences of blood in the urine. On examination it gave the following results: Specific gravity 1030; acid; no sugar; albumin one-eighth of the volume.

Under the microscope there were found epithelium, mucus and pus, and blood-cells in large quantities. There were uric acid crystals and urates, but no casts were detected. The urine was examined at intervals of four or five days, and on each occasion a greater or less quantity of blood was found present until February 12, 1895, when the specimen examined was of normal color, specific gravity 1018, and merely a trace of albumin. Under the microscope a few blood-cells were found. The patient at this time was very much better, although she had occasional attacks of pain and was weak. She had become quite pallid, and, while there was no severe pain, she often had attacks of pain in the left hypochondrium. No relation could be traced between the attacks of pain and the hematuria. The diagnosis of renal calculus was made at this time, and it seemed that the stone was loose in the pelvis of the kidney and was probably too large to engage in the ureter, hence the absence of acute pain. The patient went South, and soon after her arrival at her destination caught quite a severe cold. She had more or less fever each day, and a troublesome cough. About the middle of March, 1895, she was seized with severe pain in the right iliac fossa. This was accompanied with attacks of retching and vomiting and diarrhea. Owing to the attacks of severe pain and disturbance of the stomach the patient lost much rest at night, and was able to take but little nourishment. She returned to Philadelphia on March 24, 1895.

When seen by me she was rather sallow, the tongue was coated, and there was considerable complaint of pain in the right iliac fossa.

Careful examination of the abdomen discovered no tumor or induration, and no marked tenderness could be elicited in the right iliac fossa. She still complained of pain in the left hypochondrium, but this was not as severe as the pain upon the right side. The patient's expression was rather anxious, and she slept badly. She was able to take but little nourishment on account of the irritability of the stomach, and the bowels moved only with laxatives. The tongue was coated and the breath very offensive. The urine, on March 31, was clear, but there was a heavy sediment, with a brick-dust deposit; specific gravity 1021, no sugar, large ring of albumin with acid. Under the microscope epithelium, pus, numerous red blood-cells, and uric acid were found; no casts. April 2, the urine was again bloody, heavy sediment, and a large quantity of albumin was present. Under the microscope many red blood-cells were seen, and some doubtful casts.

Having some doubt as to the cause of the pain in the right iliac fossa, and thinking it possible that there might be some disease of the appendix, I asked Dr. H. R. Wharton to see the patient with me in consultation. He decided that there was no disease of the appendix. A day or two later Dr. William Pepper was kind enough to see the patient with me, and made a careful examination, and coincided with my diagnosis of renal calculus.

From this time both Dr. Pepper and Dr. Wharton saw the case with me, and subsequently, during my absence after May 8, took charge.

The amount of urine passed was normal until April 16. At 6 A.M. on this day she passed the usual quantity of urine. At 2 P.M. she complained of much pain in the right iliac fossa, and, being unable to pass urine, hot fomentations were applied over the bladder every few minutes. Infusion of digitalis, one-half ounce, was ordered every four hours, and Poland water was given freely, but with no effect upon the secretion of urine. The catheter was passed and the bladder found empty. The amount of nourishment had to be very limited on account of the vomiting. From this time until April 25 no urine was passed, with the exception of a few drops of fluid, which were drawn with a catheter on April 20. This fluid amounted to about one-half drachm, was pale, and had no urinous odor, and was evidently a secretion of the bladder. On the 24th sixteen drachms of fluid were drawn by the catheter. This fluid was of a milky-white color, with an odor like that of a mucous discharge, the specific gravity was 1010, acid, and there was no sugar. One-third of the entire bulk was albumin. There was a heavy white sediment, which, under the microscope, was found to consist of pus, mucus, bladder and vaginal

epithelial cells. There were no small cells from the kidneys or ureters. There were no casts found, and no crystals of any kind could be detected. It was, therefore, clear that this fluid was not urine. At 8.45 A.M., on the 25th, a catheter was passed without any result. At 1.50 P.M., on this day (nine days and seven hours after the last urine had been passed), sixteen and a half ounces of urine were drawn by the catheter. An examination of a specimen of this urine gave the following results: Light color; specific gravity, 1010; acid; slight trace of albumin; 1 per cent. of urea. Under the microscope epithelium, mucus, and pus in large quantities were found. No blood-cells and no casts could be detected.

At 6.30 P.M. the patient voided urine in bed. The amount was about eight ounces. At 8 P.M. eight ounces were passed voluntarily, and at 12 P.M. eight ounces more were passed, making a total of forty and a half ounces passed in ten hours.

During the nine days in which there was complete suppression of urine there was not the slightest evidence of uremia. The patient's mind was clear, and there was no headache or somnolence. She slept badly, and for short periods. The stomach was very irritable, and most of the nourishment taken was vomited. The bowels were loose, and from two to four liquid stools were passed in the twenty-four hours. The skin was not unusually active. There was no urinous odor about the patient.

The treatment consisted in digitalis by the mouth, and poultices of digitalis leaves over the loins. Sparteine and the mild chloride of mercury were also administered. On the fourth day two hypodermic injections of pilocarpine, one-eighth of a grain each, were administered. This caused free sweating, and seemed to make the patient more comfortable. After this there was less vomiting, and the patient took more nourishment. On April 24 two hypodermic injections of sparteine were administered, one-fourth of a grain each. During the period of anuria the patient complained of very little discomfort, and seemed to suffer less severe pain than she had done previously.

The amount of urine passed after April 25, when the urine began to be evacuated voluntarily, was from sixty to twenty-five ounces a day. The patient began to improve in strength, took more nourishment, and began to take some solid food. She slept badly and complained of more or less discomfort in the left hypochondrium. On the second day after the urine began to be passed freely, the patient was in a peculiar mental condition. After a night of sound sleep she awakened in the morning and appeared unconscious of what she was doing. The right arm and leg appeared to be powerless, as the patient made no attempt to move them. She talked at random, and

used wrong words for things. Several times she passed urine in bed, and appeared to be quite unconscious of it. It seemed as if she were in an hysterical condition, and as if she were intentionally talking in a foolish way. This condition lasted two days, and after this time the patient became sensible and talked rationally, and moved the right arm and leg as well as she had ever done.

May 7. Patient slept better, more comfortable, passed thirty-five ounces of urine.

May 8. Passed twenty-four and a half ounces of urine.

From this time the patient's condition varied from day to day. On some days she was quite comfortable, and on others she suffered a considerable amount of pain in the abdomen. The urine continued to be passed to the amount of twenty-five to forty ounces each day. Occasionally the amount of urine passed was small, and on one occasion there was but eleven and a half ounces passed in twenty-four hours. On the whole, she gained steadily and materially. She became stronger. The digestion improved, and she took more or less solid food each day. During the end of the month of May the weather was intensely hot and the patient suffered greatly from the effects of the heat. On May 30 the thermometer in the room in which the patient was registered 93° F. The patient suffered in consequence a heat-stroke. She became unconscious for several hours, and then talked incoherently. The right arm and leg seemed paralyzed. She gradually sank, and died on June 2.

Post Mortem by Dr. H. P. Boyer.

There was felt on palpation some fulness over left side of abdomen immediately above and to the left of umbilicus. On incising the abdominal wall it was found very fat and the abdominal contents had much fat attached. The stomach, pancreas, spleen, and transverse colon were pushed upward and forward on the left side. The stomach, intestines, and pancreas were normal. The spleen was slightly enlarged, the liver normal. The left kidney was very tightly bound down. The peritoneum covering it anteriorly was very thick and tough. It extended up back of the pancreas nearly to the diaphragm and its lower margin was fully as low as the top of the sacro-iliac junction. On removal it weighed one and a half pounds. It was seven inches long, including much fat in the capsule,—six and a quarter inches long without the capsule. It was four and three-quarters inches broad at the centre, and measured eleven and a quarter inches in circumference at its central portion. It was soft and flabby and would not retain its form if placed on a flat surface. Capsule thick, much fat in it, easily stripped off. In removing it many

small abscess cavities were opened, from which a reddish pus ran freely. No cheesy material whatever found. These small abscesses studded the whole of the cortical portion,—mostly on the external portion, fewer near the medulla. Very few in the medullary portion. The abscesses were from the size of a large pin-head to three-fourths inch in diameter, but the whole organ seemed saturated with pus. There was one irregular stone in the lower part of pelvis of the organ, partly, but not completely, shutting off the ureter. There were two other small stones found.

The right kidney was slightly enlarged, no abscesses in it, and no stones, otherwise seemed normal.

The ureters were not obstructed at any part of their course.

Microscopic section of the diseased left kidney showed the large size to be due to a round-celled sarcoma. There was very little kidney substance left, and many of the sarcoma cells were breaking down, which formed the multiple abscesses.

The length of time which a person can live without a kidney is quite remarkable, and this is shown in a case reported by Polk.[1] The patient was believed to have a floating kidney, and the organ was removed under this belief. It was found that it was a single unsymmetrical kidney, but the patient, notwithstanding its removal, lived eleven days.

Among the interesting cases of anuria of long standing with recovery is one reported by Adams.[2] A man suffered from suppression for nineteen days and recovered. Ostrander[3] records a case of a man who suffered from suppression of urine for eight days, and recovered. Bernard[4] has also placed on record a case in which there was complete suppression of urine for twelve days, the patient making a good recovery without having had any uremic symptoms. Ross[5] reports the case of a boy who had complete anuria for twelve days and recovered, showing during the period of anuria only mild uremic symptoms. This case was probably malarious. Féréol[6] relates a case of total suppression lasting eight days in a gouty patient without any marked uremic symptoms. The passage of a calculus about the size of a pea was followed by marked polyuria, and the patient recovered.

The surgical treatment of anuria from calculus is encouraging in its results. Demons and Pousson[7] have collected eighteen instances of operative interference in calculus anuria. Of these eighteen cases,

[1] New York Medical Journal, 1883.
[2] New England Medical Journal, 1884.
[3] New York Medical Journal, 1889.
[4] Dublin Journal of Medical Sciences, 1885.
[5] Medical Record, 1893.
[6] Le Progrès Médical, 1890.
[7] Annales des Maladies des Organes Genito-Urinares, 1894.

six died. Legueu[1] reports a case of calculous anuria which had lasted for five days, and at this time nephrotomy was performed and a calculus plugging the ureter removed. The recovery was speedy. Hind[2] reports an operation for removal of calculus in a case of anuria which had lasted six days. The patient died at the end of fifty-eight hours from heart-failure. Bland Sutton[3] performed a nephrotomy, removing a stone from the entrance of the right ureter in a case in which complete supression had lasted for five days These are a few of the cases which are to be found in recent medical literature. With such a percentage of recoveries one should feel constrained to operate in all cases of calculous anuria.

In the case which I have just related, the question of operation was seriously considered, but the patient's general condition did not seem to warrant the risk of an operation. The malignant disease of the kidney shows that operation would have been productive of but temporary relief.

Farlow,[4] in reporting a case of complete suppression, gives a summary of 125 cases of suppression of urine, ninety-three of which were collected by E. P. Fowler, and thirty-two by himself.

The following table contains a list of cases of suppression which have been published since the paper of the above author:

[1] La mercreti Médical, Paris, 1894.
[2] British Medical Journal, March 5, 1894.
[3] Medical Press and Circular, July 11, 1894.
[4] Boston Medical and Surgical Journal, 1889.

No.	Name of Reporter.	Journal.	Duration.	Cause.	Uremia.	Operation.	Termination.
1	Farlow.	Boston Med. and Surg. Journ., 1889.	12 days.	Pressure on ureters by fibrous mass in pelvis.	Uremic symptoms and convulsions.	None.	Death; passed some urine before death.
2	Wilmot.	Brit. Med. Journ., 1883.	4 "	Absence one kidney; stone in ureter of other.	None.	"	Death from perinephritic abscess.
3	Adams.	New Eng. Med. Journ., 1884.	19 "	Not known.	No symptoms except edema.	"	Recovery.
4	Ostrander.	New York Med. Journ., 1887.	8 "	Not known, but had previously had an attack of colic which may be due to stone.	None.	"	Recovery.
5	Counsell.	Lancet, 1888.	5 "	Thought that right ureter cut off previous attack, and now the left by a temporary calculus.	Drowsy only.	"	Recovery.
6	Goodlee.	Lancet, 1887.	7 "	Calculus blocking one ureter; nothing found on other side.	Not given.	"	Death.
7	Bernard.	Dublin Journ. Med. Sci., 1885.	12 "	None known.	None.	"	Recovery.
8	Shroff.	Lancet, 1884.	9 "	None known.	Slight uremia.	"	Recovery.
9	Turner.	Lancet, 1890.	3 "	Calculi in each kidney.	Not given.	Removed stones from each kidney at one operation.	Passed urine for few days; relapsed and died.
10	Vernon.	Brit. Med. Journ., 1894.	4 "	Kidneys diseased; three abscesses in one, with small calculus in ureter; very little healthy kidney substance in other one, and tubes blocked.	Not given.	Yes.	Died after one week.
11	O'Hanlon.	New York Med. Rec., 1893.	10 "	None known.	None.	None.	Died.
12	Ross.	Med. Rec., 1893.	12 "	None known; had malaria	Mild symptoms.	"	Recovery.
13	Fraser.	Lancet, 1893.	5 "	Not found at operation.	Mild; no convulsions.	Nephrotomy.	Recovery.
14	Cook.	Guy's Hosp. Report, Vol. XIV.	12 "	Accident; rupture single kidney.	Died in coma.	None.	Died.
15	Poland.	Encyclop. of Surg., Vol. v.	6 "	Accident; thrombus renal vessels on one side, and rupture pelvis on other.	Not given.	"	Died.
16	Butler.	Lancet, 1890.	13 "	Blow in abdomen, atrophy of one kidney; thrombus in renal vessels and ureter of other side.	Not given; probably none.	"	Died of bronchopneumonia.
17	Bailey.	Charlotte Med. Journ., 1895.	From Oct. 10 to Dec. 12; Dec. 12 to Feb. 1; Feb. 1 to Mar. 1.	None known.	None.	"	Recovery.

No.	Name of Reporter.	Journal.	Duration.	Cause.	Uremia.	Operation.	Termination.
18	Israel.	Deut. med. Woch., Jan. 5, 1888.	5 days.	Calculus.	Not stated.	Nephrotomy; two calculi removed.	Death in 9 days.
19	Lockwood.	Med. Rec., May 26, 1888.	9 "	"	" "	None.	Recovery.
20	Butler.	London Lancet, Jan. 11, 1890.	13 "	Blow on abdomen.	" "	"	Death.
21	Féréol.	Le Progrès Méd., 1890.	8 "	Calculus.	None.	"	Recovery; stone passed.
22	Carstens.	Physician and Surgeon, April, 1894.	11 "	Obstruction from tumor.	Not stated.	"	Death.
23	Kaefer.	Berliner klin. Woch., May, 1894.	8 "	Calculus.	None.	"	Recovery.
24	Sequen.	Le Bulletin Méd., July, 1894.	5 "	"	Not stated.	Nephrotomy.	Recovery.
25	Hind.	Brit. Med. Journ., May, 1894.	6 "	"	" "	Nephrotomy.	Death.
26	Sutton.	Med. Press and Circular, July, 1894.	5 "	"	" "	Nephrotomy.	Recovery.
27	Eustace.	Brit. Med. Journ., Jan., 1896.	8 days complete; 20 days partial.	. . . . .	None.	None.	Recovery.

OVARIAN NEUROSES, CONSIDERED FROM A SURGICAL STAND-POINT.[1]

By J. M. Baldy, M.D.,

Philadelphia,

Professor of Gynecology in the Philadelphia Polyclinic; Surgeon to the Gynécean Hospital; Gynecologist to the Pennsylvania Hospital.

No subject in the whole range of gynecological affections is so difficult to treat satisfactorily, and in no class is it so impossible to approach a fixed standard from which to determine surgical treatment as in the so-called ovarian neuroses. The whole matter resolves itself almost entirely into a question of *diagnosis* rather than into a question of surgery, and the all-important point to determine is whether or not the woman's symptoms arise either directly or indirectly from pelvic disease. This point being settled in any given case in the affirmative, the question of surgical *versus* medical management is much simplified, and there should be little trouble in arriving at a correct conclusion. On the other hand, be it concluded that pelvic

[1] Read before the Iowa State Medical Society, Des Moines, Iowa, April 16, 1896.

disease does not enter into the case further than as one of many other groups of symptoms, the case belongs more properly to the neurologist, and surgery is no longer a factor to be considered. It is just this point of difference which renders the whole subject so complicated, and which has been the means of throwing so much discredit on legitimate surgery, and it is just here that the difference between the true surgeon and the operator shines forth in marked contrast; any one may by diligence become an operator if the surgical instinct be in him, but how many fall short of being a surgeon in the fullest and better sense of the word you all know. In no class of patients can the operator do more harm; in none can the conscientious surgeon so frequently prevent irreparable damage to the patient and lasting injury to surgery.

The field of so-called ovarian neuroses is so large that it becomes necessary for purposes of discussion to consider it in detail, and after a brief consideration it will be apparent how impossible it is to judge of these cases on any rule other than that which decides each individual case as it presents itself absolutely on its own merits irrespective of anything else. I know of no group of cases in which this can be so truly said.

The subject naturally divides itself into hysteria, hystero-epilepsy, and insanity.

Hysteria.—In this class will be included all that group comprising neurasthenia, ovaralgia, ovarian dysmenorrhea, nerve exhaustion, reflex nervous symptoms of all kinds, and so on to the interminable end.

No patients suffer more or for a longer period with less prospect of relief than do these. None, as a rule, are more convinced than they that their suffering arises, if not primarily at least secondarily, from pelvic disease, and only too frequently is this hallucination fostered by some one or more medical attendants in their own and the minds of their friends. In fact, this idea of the cause of their sufferings has only too often originated in the carelessness of their medical attendant, and the local treatment applied daily and weekly with wonderful persistency has finally thoroughly convinced them that their whole trouble lies in the pelvis, when originally they probably had no thought in this direction. The ever-present headache, the more or less constant backache, the continual worn-out and tired feeling, combined with pain more or less constant in the iliac regions, are generally accepted as probably indicative of pelvic disease, but when these symptoms are accompanied with disordered menstruation (either too free or too scant) and leucorrhea the probability resolves itself into a certainty, especially if some kind friend or thoughtless doctor sug-

gests such a possibility. Not infrequently the trouble has originated at the time of marriage, a miscarriage or childbirth, a which fact is an additional reason for looking askantly at that ever offending organ, —the ovary. As years pass such a woman's condition is truly pitiable, and one is justified in resorting to almost any extremity in order to obtain relief for the sufferer. The all-important question arises, however, as to whether or not surgery is an advantage or a disadvantage, whether it does the patient harm or good. Individual opinion differs somewhat in this respect, although the bulk of authority is against the assumption that pelvic disease is the cause rather than the result of the neurosis.

De La Tourette says that the idea that the ovary is the seat of hysteria is silly and mischievous.

Charcot condemns oöphorectomy in these conditions and denies the existence of genital hysteria. He goes so far as to say that he has never seen a case where operation would be justifiable. This is, of course, an extreme view, and in my opinion is equally as injudicious in the face of the clinical facts as are the teachings of those gentlemen who report such large numbers of these patients as cured by removal of the ovaries.

The experience of Liebermeister so largely simulates my own that I will quote his remarks: "On the one side we often see hysteria in individuals in whom the anatomic and functional condition of the sexual organs is wholly normal. At the same time it must be taken in account that there are physicians calling themselves specialists in gynecology who under no circumstance ever find a normal uterus. On the other hand, all sorts of diseases of the sexual organs may occur without the presence of hysteria. Cases of hysteria cured through local gynecologic treatment alone are rare, and also there are women who have never been hysterical in whom this disease has developed after gynecologic treatment and after their attention has been drawn to the condition of their sexual organs. Many cases are cured in whom the sexual organs remain unchanged. We must therefore regard cases of hysteria as rare which are dependent exclusively upon abnormalities of the sexual organs. It is nevertheless true that anatomic changes and abnormal irritation of the sexual organs are conditions especially fitted to cause hysterical manifestations." He might with equal force and truth have added that chronic neurasthenia almost invariably produces a train of symptoms referable to the pelvic organs.

In considering the advisability of surgical treatment in these cases it behooves us to carefully study certain questions in connection with their past history as well as their present condition: have

they any physical disorder which can be demonstrated by a pelvic examination? are the pelvic organs the only ones through which the symptoms are manifesting themselves? if there be pelvic disease present, did the present suffering begin prior to the contraction of the disease or did they come simultaneously? The answer to these and similar questions are of vital importance. The point of all this will probably better be understood by applying the test to an actual case.

A married lady, 35 years of age, was sent me from the central part of Pennsylvania for the purpose of having me remove her uterine appendages for chronic pelvic inflammatory disease. She was emaciated, had the appearance of being very sick, suffered from constant headache, backache and pain in both iliac regions. Constipation and frequent urination with burning were present. Her digestion was bad and she had little appetite. She frequently suffered from palpitation of the heart. Her strength and inclination for exercise were greatly impaired. Menstruation was very painful, too frequent, and profuse. Leucorrhea was considerable. There was a feeling of weight and bearing down in the pelvis, a drawing pain beginning about the clitoris and extending down the leg half-way to the knee, and coition was painful. Altogether she presented a miserable appearance. A pelvic examination disclosed an adhesion of the hood of the clitoris, a retrodisplacement of the uterus with prolapse of both ovaries; the appendages were apparently normal. The pelvis and abdomen were exceedingly tender to the touch. My diagnosis was neurasthenia pure and simple. I so informed her doctor, and at the same time agreed to admit her to the hospital in order that I might correct her physical ailments in hopes that the opinion given might prove incorrect or that the moral effect of several etherizations and operations together with the thorough rest, proper feeding, and nursing might relieve her. I reached my diagnosis in the following manner, and in spite of the adhesion of the clitoris and the retrodisplacement; unless some similar line of reasoning be adopted you will be led astray in many cases. To begin with, although the woman had emphatic symptoms of uterine and ovarian disorder, so had she of the bladder, intestines, stomach, heart, and brain.

During the pelvic examination I found that she drew away from my hand whenever or wherever I touched her. By either drawing her attention closely to something else or by cautiously continuing my manipulations in spite of her apparent great suffering there became a marked difference, and I could freely handle parts which at first I could barely approach. A close questioning elicited the facts that she was, to a certain extent, a nervous or hysterical girl before

marriage, she became worse after becoming a wife, she was at times during her married life worse than at others, but did not finally break down until just after the next to the last of her pregnancies. In other words, she had always been delicate but continued to be able to bear children. All this proved that the displacement did not cause sterility, as her uterine malposition probably occurred after her first confinement; it was evidently not the origin of her neurotic trouble as she had had that previous to marriage; that her Fallopian tubes were patulous and probably not diseased; that her pain was in part imaginary, and that her troubles began before she was married and before there was any cause for pelvic disease. The force of the reasoning was fortified by the treatment. She was etherized after several days' study of her case and the clitoris freed from all adhesions. She obtained no relief. One week later she was again etherized and the uterus curetted and suspended from the abdominal wall. The pelvis was found to be perfectly healthy. She obtained a few weeks' apparent relief, but her old symptoms without exception gradually returned and she went home as miserable as she came to me. It had been folly to have removed this woman's ovaries; the result would have been the same. How many cases to a great extent similar to this one have we not all seen after the ovaries have been removed? In my experience they are just as bad, if not worse, than before. If the menstrual flow has ceased, which is not always the case unless the uterus be removed at the same time as the ovaries, the dysmenorrhea is cured, but not infrequently it will be found that other symptoms have taken its place or old ones are redoubled; ovarian pains are replaced by painful stumps, backaches continue, and the general nerve-reflexes are increased by the addition of the depressing nerve-storms of the menopause. A miserable woman is no better and is most probably more miserable on account of the presence of the menopause, the knowledge of the loss of her ovaries, and the keen disappointment of an expected cure.

The justification most frequently offered for the operation in these cases is the fact that the ovaries are diseased. The old question arises at once to face us, Is the diagnosis correct? Is there actual disease present? A careful study of those cases triumphantly reported, either for the purpose of justifying operation in this class of cases or found included in a general report of statistical tables, produces a universally similar result; a clinical history of general neurasthenia and specimens of either cystic or cirrhotic ovaries. Are cystic or cirrhotic ovaries pathological? I ask this question in all sincerity and from the stand-point of these specimens as I have many times seen them in specimen jars, at society meeting, and have had

them described to me, I just as sincerely answer in the negative. Who of you have ever seen an ovary which has not had one or more small cysts (hydrops folliculi) scattered over its surface? Who of you have not repeatedly seen and heard these ovaries pronounced cirrhotic without even a pretence at a microscopical examination? I venture to say that nine out of ten of the organs removed in this class of patients are normal; by normal I mean they are in a no worse condition, as far as cystic and cirrhotic degeneration is concerned, than are the ovaries of the vast majority of women who never suffer a pain or an ache. What good can there be expected from their removal, and oftentimes what an amount of harm?

If, on the other hand, actual disease be present and can be plainly demonstrated by a physical examination, who is so reckless of the welfare of his patient as to deny her the possible benefits of the removal of the diseased organs. But even here allow me to offer one word of caution. It is always well to bear in mind that actual disease at times exists,—for instance, ovarian cysts, fibroid tumors, etc.,—and at the same time neurasthenia, hysteria, or whatever else you wish to call it, the one independent of the other. I have not infrequently seen the removal of the neoplasm or the diseased organs fail to effect the neurotic symptoms.

It will be appreciated, then, what a potent factor is diagnosis in the determination of the treatment of hysteria.

Hystero-Epilepsy.—One is often astounded at the number of patients suffering from hystero-epilepsy reported as cured by oöphorectomy, especially in the practice of individual surgeons. For instance, Dudley P. Allen reports a group of six cases with four cured and two greatly relieved. H. Marion Sims reports five cases cured by this operation. Thomas, J. Marion Sims, Pallen, Vander Veer, Gorden, and others have put many more on record. On the other hand, Spencer Wells, Reamy, and men of like standing roundly denounce this method of treatment. Reamy says, "My personal observation in this field has been somewhat extensive both as to the results of my own work and the work of others, and in the majority of cases the convulsions, the hystero-epilepsy, persisted." Willis Ford, in speaking of his surgical experience while connected with an asylum, says, "I was very ambitious to cure epilepsy, and a few cases were assigned me. None of the patients died under treatment; but, then, none of them recovered from their epilepsy. For perhaps a year the attacks would be lessened; in two they were absent for several months, then the hystero-epilepsy came back in modified form, and in two or three years the full tide of the epilepsy was re-established." A. Palmer Dudley has collected from different operators, by personal

communication, 105 cases. He states that "the conclusions resulted unfavorably to treatment by removal of the appendages. A majority of the gentlemen reported their cases as unsuccessful. The patients were relieved for a time, but the attacks returned." Thus we see a very wide difference in opinion, and one is driven to his own experience for comfort, if any is to be there obtained. For myself, I am compelled to take an intermediate position between the two, not laying down any hard and fast rule by which to be governed, but judging each case on its own merits as it presents itself. The general tendency should, I think, be in the line of non-surgical interference; it has been the exceptional case which, in my personal experience, has warranted such treatment, and in great part my observations have taught me largely what has been observed by those gentlemen who are opposed to the operation; on the other hand, I have seen a small group of patients who have apparently, after several years, retained the relief which they undoubtedly experienced soon after their operation. A careful consideration of these cases brought to light an almost universal similarity. The epileptic seizures occurred at the time of the menstrual epoch, and only then. This, then, is our only guide. A patient presenting the symptom of hystero-epilepsy occurring only at menstruation, and which attacks did not exist prior to puberty, but began at or after that period of life, is a fair subject, every other method of treatment having been first thoroughly and systematically tried and exhausted, for the operation of double oöphorectomy. I wish to repeat the same warning given in the cases of neurasthenia; do not be surprised should the majority of such cases fail to obtain relief even by this method. One fact in this connection is worthy of note; the pathological condition in the majority of cases operated upon for this cause has been reported as cystic and cirrhotic ovaries.

Insanity.—I am well convinced that we are here treading upon even more uncertain ground than in either of the other two class of cases. Of late years in certain quarters removal of the ovaries has been strongly urged upon the profession in this condition. The rather pertinent question is asked by these gentlemen, Why should an insane woman remain unrelieved from pelvic disease any more than her sane sister? The answer as adopted by them is both rational and sound, the only question being, Has the woman pelvic disease, and is that disease causing her suffering, or is it the cause of her insanity? It is upon the answer to this that the whole subject hinges. Clouston, Jewell, Ayres, Woodbury, Herter, and Smith have pointed out the frequency with which gastro-intestinal disturbances accompany insanity. Burr relates cases of hypochondriasis depending upon a diversity of morbid conditions of the physical organism. Alice Bennett

has shown the frequency with which Bright's disease is so associated, as have also Riggs and Tuttle and Christian. Rohé, Alice Farnham, and others have demonstrated beyond question that pelvic disease is a very frequent accompaniment of insanity, and Rohé, who is perhaps the strongest advocate of the operation in this country, reports thirty operations with variable results. To show the frequent occurrence of certain physical ailments, however, with insanity, and demonstrating their causal relation are two entirely different matters, and it does not appear to me that any of these physicians have so succeeded. For instance, Rohé states that his own examinations in the Maryland Hospital for the Insane "have shown that fully 60 per cent. of the women admitted have some lesion of the genital organs or pelvic viscera. One hundred women were examined, in forty of whom the local lesions found were believed to justify operation. In thirty of these abdominal section with removal of the uterine appendages was practised. Kirkley places the proportion at 27 per cent. One may at first glance be surprised at the large proportion (60 per cent.) of insane women with pelvic lesions, and even consider it of great significance. The facts as presented by Rohé cannot, I think, be successfully disputed, but his inferences and the wisdom of his action in performing oöphorectomy upon thirty of these women may, I believe, be most seriously questioned. Alice Farnham conceived the idea of comparing the results of the pelvic examination of a certain number of the female patients of Willard Asylum with the same number of mentally healthy women of the same pauper class. The sane cases were obtained from a neighboring almshouse and penitentiary. She succeeded in obtaining examinations of thirty women of each class taken consecutively as they came to hand. "Out of the thirty mentally healthy women but four were found in whom the pelvic organs were in a condition of health. Out of the same number of insane women, taken *seriatim* from the patients in two wards, six were found in whom the pelvic organs were in a condition of health." It will therefore be seen that the proportion of affected cases are about the same in both classes. What then becomes of the supposed causal relation as urged by Rohé?

It is not possible, however, to ignore the results following operations as reported by such well-known and reliable an authority. Rohé reports in detail twenty operations with eighteen recoveries. The results obtained were "four absolute mental recoveries (two thirteen months, one ten months, one two months), ten showed more or less mental improvement, three remained in the same condition mentally," with the result in the other four unrecorded. Four cures in this number of operations would be very encouraging could we depend upon such

a result with any certainty. The various and unaccountable transitions from insanity to sanity is so familiar to us all, however, that we can only view the results with caution. How, for instance, can any stretch of imagination attribute the cure which was accomplished in a case mentioned by Kirkley to the removal of the ovaries: "immediately upon recovery from the anesthetic the mental equilibrium was restored." Recurring once more to Rohé's work, is it not probable that part of the results, if not all, are explained by his own words? "The number of my cases is too small to allow one to draw any conclusions, but if anything of practical value can be deducted from them it is that puerperal insanity, melancholia, and simple mania offer the best chances of cure from the proper treatment of local lesions in the pelvis. *Of course it may be said that these forms of mental disorder are just those which yield in the majority of cases to the usual methods of management of insanity.*"

My own experience in this matter has not included a single operation. I have frequently been asked by friends of patients in some one of the asylums in and about Philadelphia to examine their insane friends to determine whether or not there was pelvic disease sufficient to warrant the assumption that their insanity was due to those lesions. In not a single case have I been able to determine in the affirmative.

The aspect of the case which deserves careful attention is the physical suffering of the insane from gynecic troubles. No one can for a moment deny these women relief to precisely the same degree they would a sane patient. That their physical condition is improved is amply attested to by the results of Rohé and Manton. Manton operated seven times, and although the mental condition remained unaffected, still the physical welfare was greatly improved. In all of Rohé's cases physical improvement was noted. Such also has been the experience of others. When this self-evident proposition is generally accepted and acted upon we may find an occasional unfortunate restored to mental as well as physical well-being. To what an extent this will occur remains for the future to develop.

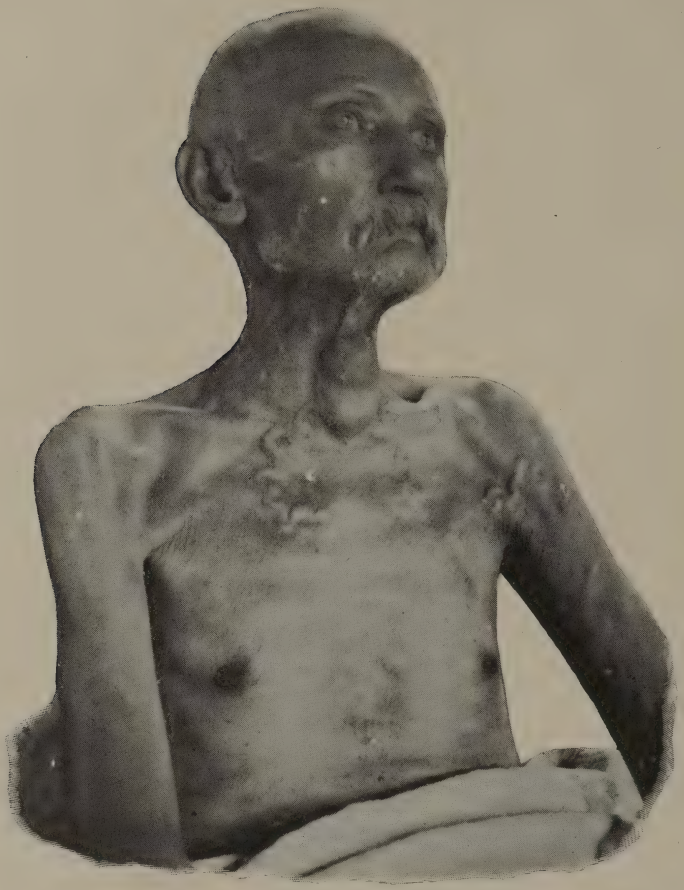


FIG. 1.—F. H. Cervical and substernal goitres, showing dilated and tortuous venous trunks.

THREE CASES OF INTRATHORACIC TUMOR: CYSTIC SUBSTERNAL GOITRE; SARCOMA OF ANTERIOR MEDIASTINUM; PRIMARY ENDOTHELIOMA OF PLEURA.[1]

By Frederick A. Packard, M.D.,

Philadelphia.

The following cases are reported partly on account of the features of contrast presented by them, partly because of various peculiarities that rendered them of much interest to the writer.

Case I.—*Calcified Cystic Goitre in Neck; Cystic Substernal Accessory Thyroid Gland forming a Tumor in the Anterior Mediastinum.* Frederick H., white, aged 69 years, a native of Germany, was admitted to the Episcopal Hospital on March 6, 1894. The family history is negative.

He was never ill except for the fact that in 1842 there formed a growth in his neck, which measured at the date mentioned twenty inches in circumference. It apparently yielded to treatment, and soon became reduced to the size shown on admission. When large it caused much dyspnea and dysphagia. He has had more or less difficulty of breathing for the past thirty years.

In December, 1893, he had an attack of "influenza," and since then had been growing progressively weaker, and had had steadily-increasing dyspnea with painful cough and muco-purulent expectoration. Edema of the feet and ascites soon became prominent sources of inconvenience, and he has also suffered much from serous diarrhea and from headache.

I found the patient in the ward when I went on duty on July 1, 1894. The physical examination revealed the following conditions:

Patient decidedly emaciated; skin of an earthy hue; conjunctivæ quite white; pupils rather small but equal, reacting poorly to light, promptly on accommodation; temporal arteries tortuous, pulsating visibly, their walls decidedly thickened; tongue coated in some parts, very naked in others; the left side of the mouth appears to droop; mucous membrane of the mouth pale; on lower lip dilated venous radicles.

Examination of the larynx, made by Dr. Gibb, the laryngologist to the hospital, showed "sclerotic condition of mucous membrane of pharynx; larynx capacious; mucous membrane reddened; cords

[1] The specimens from the cases here related were shown at the meeting of the Pathological Society of Philadelphia, on December 27, 1894.

approximate normally, and are of normal appearance; subglottic portion of larynx and upper joint of trachea on the right side present a somewhat bulging appearance as though from external pressure." In the median line of the neck anteriorly there was a lobulated, firm, hard tumor, moving readily upward with the thyroid cartilage in the act of swallowing. It was quite firm to the touch with a cartilaginous hardness. Its size and position are well seen in the accompanying photograph (Fig. 1). It did not pulsate, nor was any murmur to be heard over it.

The veins on both sides of the neck were much distended, and the arteries in the neck were plainly visible in their pulsation. Crossing the clavicles at a point about one inch from their junction with the sternum were two large venous trunks extending downward by a tortuous course to the second costo-sternal junction, the blood-current being evidently downward. On the left side a large venous trunk is seen extending to the point of deltoid attachment in the left arm; it then courses horizontally and then downward to join another enlarged vein. The blood-current in this trunk flowed towards the median line of the body. Over the surface of the thorax were numerous dilated venous radicles, most marked in the upper zone and in the left hypochondriac region. Distinct pulsation was present in the first and second, slight pulsation in the third, right intercostal spaces. The same pulsation was present in a corresponding area on the left side, but to a smaller degree. The veins on the dorsum of the left hand were slightly more prominent than were those on the right.

There was marked epigastric pulsation. The apex-beat was feeble and diffuse, the point of greatest intensity as well as that farthest downward and to the left being in the fifth intercostal space in the left mid-clavicular line. Cardiac dulness extended from the third rib in the left parasternal line, and from the mid-sternum at the level of the fourth interspace. At the apex there was a harsh systolic murmur well transmitted to the left. The first sound at the aortic area was decidedly "choppy" and short, but no murmur was present at this, the pulmonary or the tricuspid areas.

Pulmonary expansion was very poor, especially upon the right side. The percussion-note anteriorly was decidedly impaired over the left side. Posteriorly there was dulness on the left side from the level of the seventh dorsal spinous process downward to base. Over the dull areas the breath-sounds were very distant; vocal resonance much impaired. In regard to tactile fremitus nothing positive could be affirmed owing to the extreme weakness of the voice. Over the body of the sternum and running outward on either side beyond the parasternal lines there was flatness with much increase of resistance.

The abdomen was distended, the skin slightly yellow in color. The right hypochondriac and the right upper umbilical regions were distinctly more prominent than were the corresponding regions on the left side. No enlargement of superficial veins of abdomen. On the right side three fingers' breadth below the costal margin and from the middle line to three inches to the right there was yielding resistance, sinking on inspiration. The area over the mass was dull, the dulness being continuous with the area of liver dulness,—presumably an enlargement of the liver as a whole. Splenic area of dulness not increased.

Examination of the urine showed a specific gravity of 1015, neither albumin nor sugar, and a sediment composed of oxalate of lime crystals and pus-corpuscles.

The old man rapidly lost strength, chiefly from profuse and uncontrollable serous bowel movements, and died on July 12, 1894.

A hurried examination of the body was made, the only portion that could be investigated being the thorax, and of this the best that could be accomplished under the circumstances was the removal by the resident physician, Dr. J. C. Da Costa, Jr., of the mediastinal growth. This was a slightly lobulated, heavy mass of an irregularly-flattened cone shape. The anterior face presented the shape of an almost equilateral triangle, with sides measuring from eight to nine inches. Section showed that it was made up of large cystic cavities with firm, not collapsing walls, the tissue between the cysts being scanty in quantity and of a reddish color. The cysts contained a reddish-brown, rather glairy fluid, although in a few the material was more watery. Examination of the fresh fluid showed no formed elements, no hooklets, but a few cholesterine crystals in some of the cyst contents. It is much to be regretted that it was impossible to make a more thorough and careful dissection in order to determine the exact relations of the tumor and to study the formation of the collateral venous circulation. The mass removed had no visible pedicle, nor was it supplied by any large arterial branches.

Microscopic examinations of portions of the growth, kindly made for me by Dr. Riesmann, showed the structure of thyroid-gland tissue with marked cystic degeneration.

Tumors formed of thyroid tissue within the thoracic cavity are not rare. The greater number found reported in the literature of the subject are, however, of the variety described by Fodéré (Turin, 1792) over a century ago as "goitre en dedans." In these the tumor-mass is simply an extension downward of a portion of one of the lateral lobes of the thyroid gland. In the literature one finds a by no means small number of such intrathoracic tumors dating from the observa-

tion of Fodéré to the case last reported by Anthony Bowlby[1] at the Clinical Society of London. A large number of the cases from the literature together with many original examples of this condition are collected in the most excellent article by A. Wölfler.[2] A complete transitional series of cases could be arranged showing the progressive stages through which an ordinary goitrous thyroid lobe may leave the neck and finally attain a position within the thorax. The intrathoracic growth may be a simple continuation downward of goitre in the neck, or the cervical and intrathoracic portions may be demarcated by a sulcus; this sulcus may be composed of true parenchymatous thyroid tissue, or may consist simply of fibrous tissue. Wölfler suggests[3] that it can well be conceived that, if the intrathoracic portion become connected with the pleura by adhesions containing sufficient blood-supply, the stalk connecting it with the cervical portion might in time become thinned or destroyed, and adds that it is not improbable that an old cystic or calcified goitre would need but very little nourishment.

Another source from which intrathoracic goitres may arise is the presence of thyroid tissue congenitally present within the thoracic cavity. According to Wölfler[4] and others there are found within the thorax of the human embryo and in dogs, fowls, lizards, and some batrachia accessory masses of thyroid tissue in the median line. Wölfler observed instances of enlargement of the aortic thyroid nodules in goitrous dogs,—a fact that has much bearing upon the case here reported,—and that the larger the goitre the greater was the size attained by the aortic accessory glands.

It is of course a question that cannot be definitely decided whether the intrathoracic growth in this case was in truth a degenerated and cystic enlarged aortic accessory thyroid gland, or whether the formation of the mass was primarily in the cervical thyroid gland with subsequent downward progression into the thorax, formation of adhesions with surrounding tissues, and final disappearance of the connecting isthmus. From the appearance of the mass I should have supposed the former theory correct, and am still so inclined. Against this view is the history of reduction in size of his goitre, which may have been due to one portion of his cervical goitre becoming subclavicular and later substernal, and the fact that the anatomical investigation was not sufficiently thorough to establish completely

[1] Clinical Society's Transactions, Vol. XXVIII, p. 197, 1895.

[2] Archiv für klinische Chirurgie, Band XL, p. 182, 1890.

[3] Loc. cit., p. 191, foot-note.

[4] Wiener medicinische Wochenschrift, 1879, No. 8; Ueber die Entwickelung und den Bau der Schilddrüse, etc., 1880; Archiv für klinische Chirurgie, Band XL, 1890; Arthur Rivière, "La Glande thyroïdes et les Goitres," Paris, 1893; E. G. Ssalistschew, Archiv für klinische Chirurgie, Band XLVIII, p. 452, 1894.

the absolute independence of the growth from the cervical goitre. It should, however, be said that careful examination of both the cervical and retrosternal goitres was made in a thorough and leisurely manner after removal from the body, and that no trace of any separated pedicle or divided connecting isthmus of tissue could be detected. It is therefore probable that this was an example of true primary intrathoracic goitre resembling that observed by Wölfler in goitrous dogs.

An analysis of the cases of this and analogous conditions of misplaced thyroid tumors would be useless, inasmuch as nothing of importance could be added to the most thorough and exhaustive work of Wölfler referred to above.

The author would, however, call the attention of those interested in the question to Von Eiselsberg's remarkable case.[1] Briefly stated, the main points of interest in it are the following: After extirpation of a goitrous thyroid in 1886 myxedema appeared. In her second pregnancy thereafter a hard nodule appeared in the sternal region. With the growth of this tumor (which, by the way, was noted to be larger during than between the menstrual periods) the symptoms and signs of myxedema lessened. In 1892 severe lancinating pains in the sternal growth induced her to again apply for treatment. At this time there was no evidence of myxedema or of tetany. In September, 1892, the tumor-mass with the surrounding bone was removed by the chisel, and showed the structure of cylindrical-celled carcinoma. Nine days after the removal of the growth tetany appeared in both arms and legs and continued, although to a lessening degree, until the end of November of the same year. In December a sudden relighting of the tetany took place and lasted for ten days. In the summer of 1893 she again became pregnant, and towards the end of pregnancy suffered from frequent tetanic cramps. In the spring of 1894, after delivery, some of the symptoms of myxedema reappeared. A small orange-sized tumor of the left scapula and one in the extensor muscles of the thigh were present at the time when the report closed. Von Eiselsberg suggests two possible explanations. Either it was a case of carcinoma occurring in an accessory thyroid, or it was a metastasis of carcinoma to the sternum (or possibly an adenoma later becoming carcinomatous), which had taken on compensatory action for the removed thyroid. He inclines to the latter view on account of the origin of the growth apparently within the tissue of the sternum.

Case II.—*Round-Celled Sarcoma of Anterior Mediastinum; Secondary Involvement of the Pericardium, Heart, Lungs, and Pleura; Exploratory Puncture, with breaking of Needle; Death; Autopsy.* John G., white, aged 32 years, was admitted to the Philadelphia Hos-

[1] Archiv für klinische Chirurgie, 1894, p. 489.

pital on November 24, 1894. He was a native of Ireland, but had been in America for twenty years. He worked in a morocco factory.

He was always a strong and healthy man, his only illness being that for which he was admitted to hospital. He gave a history of a former attack of gonorrhea, but denied other venereal disease. He had been a hard drinker, going on "sprees" of two weeks' duration. No history of traumatism.

The first signs of illness occurred six weeks before he came to hospital. At that time he was "tramping" and in his usual condition of good health, when he was suddenly seized by a sharp attack of pain of a tearing character on both sides of the chest, and extending out to the shoulder on either side. The pain was very severe and after it had subsided he still felt indefinitely ill. Four or five of these attacks occurred before he applied for admission, lasting sometimes for a day, sometimes for a shorter time. Although feeling sick between the attacks, he was still able to be about.

Upon admission he was found to be well-nourished and of powerful build. The whole body was much discolored by cyanosis. Respiration was labored, 46 to 50 per minute, and there was complete orthopnea, except when he became exhausted and laid for a time upon the right side. The pulse was rapid and jerky. Short, spasmodic, unproductive cough, such as is so characteristic of pleural effusion, was almost constantly present. The voice was smothered but was otherwise unaltered, the character mentioned being evidently due to the intense dyspnea. The pupils were equal and natural. Tongue clean and protruded in the median line. The chest was well-formed, the left side, posteriorly, being apparently a little less in size than the right. Respiration chiefly abdominal, but little lateral expansion occurring, and the chest being somewhat elevated as a whole upon inspiration. The abdominal wall moved, in respiration, much less upon the left than upon the right side, so that there was a peculiar twisting of the abdomen towards the right on inspiration. The abdomen was somewhat distended and tympanitic.

The apex-beat was imperceptible to sight or touch. No area of pulsation was present at any part of the chest. The heart-sounds were most plainly audible at the normal position of the apex-beat. They were distant and feeble, but were neither accompanied nor replaced by murmur. As will be seen below, the area of cardiac dulness could not be separated from other non-resonant areas.

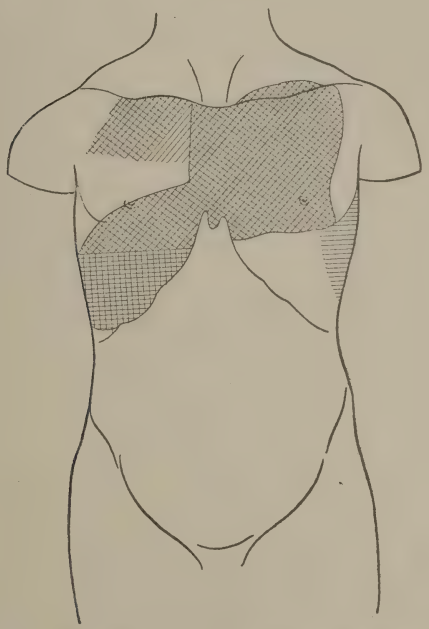
On the right side anteriorly the note from clavicle to the upper border of the third rib was directly poor, being high-pitched and dull. At the upper border of the fourth rib there began an area of dulness that joined the hepatic dulness below and the cardiac dulness to the

left, extending towards the right as far as the anterior axillary line. There was flatness over the whole body of the sternum, and over the whole left anterior surface of the chest. (See Fig. 2.) In the left axillary region there was profound dulness save at the inferior portion, where gastric tympany was obtained.

Posteriorly there was flatness from base up to the angle of the scapula upon the right side, from base to level of fifth rib upon the left side. Change of posture showed sifting of the upper line of dulness upon the left but not upon the right side.

Anteriorly the breath-sounds upon the right side were feeble but of normal character from clavicle to upper border of third rib, normal

FIG. 2.



from that point to the fourth rib, absent below that level. On the left side anteriorly there was complete absence of breath-sounds at all points. Posteriorly upon the right side the breath-sounds were distant and feeble below, normal above the angle of the scapula. On the left side there was silence with complete absence of tactile fremitus and vocal resonance up to the fifth rib, and in the left axillary region.

There was, therefore, evidently a considerable accumulation of fluid in the left pleural cavity in spite of the right decubitus, and upon the day after admission an aspirator-needle was inserted in the

sixth interspace posteriorly, and twenty-five ounces of a blood-stained, slightly turbid fluid were withdrawn. The patient was much relieved at once, and there was slight diminution of cyanosis. Immediately after the aspiration the respirations fell from 36 to 28 per minute, the percussion note over the left lung posteriorly and in the left axillary regions became resonant, and vesicular murmur could be heard over the left chest except at the extreme base. Anteriorly the physical signs remained unchanged.

On November 26 he seemed better in the morning, but towards noon become much cyanosed and respiration became much embarrassed. The decubitus was persistently upon the right side save when the position of orthopnea was assumed during the attacks of more marked dyspnea. The apparent area of cardiac dulness extended from a half inch to the right of the sternal border to an inch to the outer side of the left mid-clavicular line, and at the third rib could be differentiated from the area of less intense dulness that extended downward from the left clavicle. The heart-sounds seemed distant and by no means indicated as good cardiac action as did the pulse, the latter at this time being of quite good force and volume. The breath-sounds could be plainly heard and were of fairly natural character over the left lung posteriorly, but were absent in the left axillary region.

On the 27th friction-sounds were present in both axillary regions and there were fine crepitations at the base of the right lung. Upon the left side friction-sounds were very distinct and close to the ear down to the eighth rib, below which point there was silence. Gastric tympany was elicited by the lightest percussion below the eighth rib in the left anterior axillary line. Posteriorly on the left side resonance was impaired, without flatness, and the breath-sounds were feeble and distant.

On November 28 distant tubular breathing was heard at a point three inches to the left and a little below the point of puncture. Posteriorly upon the right side there were fine crepitations, especially loud at the base. Otherwise the conditions present at the last examination still prevailed.

On the 29th there was considerable extension of the area of tubular breathing in all directions. This appearance of tubular breathing was unaccompanied by rise of temperature. Since his admission the patient's general condition had remained practically unchanged. The temperature was normal, the breathing rapid, the pulse of variable but usually good force. The dyspnea remained persistently, and there was very marked capillary stasis from the costal margins upward on both sides. The patient usually lay curled

up on the right side, but would at times sit up with the head bowed forward and resting on the knees, while the hands were extended forward to clutch the bedclothes. It was at about this time that there were noticed numerous dilated venous radicles running upward for about an inch from the costal border on each side of the chest; and also at this date the patient first complained of loss of power, numbness, and tingling in the right arm and hand, evidently the result of pressure exerted in the right lateral decubitus.

On December 3 there was marked dyspnea and the physical condition of the patient was not so good as before. Owing to the persistence of dulness and absence of breath-sounds below the left clavicle an exploratory puncture was made in the left mid-clavicular line in the second interspace, and about an ounce of dark blood was withdrawn with almost no suction being exerted on the piston of the syringe. Further withdrawal was deemed inexpedient on account of the certainty of absence of pleural exudate in that region. Owing to the strong suspicion of the presence of fluid still remaining in the left pleural cavity at a lower portion the needle was inserted in the sixth interspace just behind the posterior axillary line. Some difficulty was experienced in puncturing the interspace owing to the close approximation of the ribs. When the needle was fully inserted the patient made a sudden movement, the needle was snapped in two by the approximation of the adjoining ribs and the distal portion remained hidden by the skin. I at once froze the skin and made an incision down to the intercostal muscles. Careful exploration with finger and probe failed to reveal the whereabouts of the missing portion of needle.

There was some pain of brief duration immediately after the accident and again during the latter portion of the same afternoon, but it was quickly relieved by a single hypodermic injection of an eighth of a grain of morphine.

Upon the following day the patient seemed none the worse for the accident; in fact, he said that he felt better.

On December 5 a tumefaction appeared at the lower portion of the neck on the left side. By December 7 this could be distinctly outlined as a well-defined tumor beneath the left sterno-cleido-mastoid.

Until the time of his death, December 9, the conditions remained nearly the same save for extension of bronchial breathing over the whole of the left side of the chest posteriorly, increasing weakness, and cyanosis of the chest and face, increasing paresis of the right arm and rather rapid growth of the mass in the left side of the neck.

The *autopsy*, at which I unfortunately could not be present, was

made by Dr. Bevan, Assistant Pathologist to the hospital. I quote his notes upon the examination:

Body well-nourished; rigor mortis marked; peritoneal cavity contains a pint of clear serous fluid; pleural cavities contain fluid,—the right thirty-six ounces, the left forty-five ounces. The fluid was thin and blood-stained.

Pericardium contains blood-stained fluid. A number of small nodules found on parietal layer. The right side of the heart was flaccid, the left contracted. The heart was covered with small nodules varying in size from that of a pin-head to that of a pea, very firm and light-gray in color on section.

Left lung not adherent. There were a number of small nodules on inner surface penetrating into the lung tissue. Right lung similar to left.

In mediastinal space a large, dense, white mass, extending from diaphragm to clavicles, and from the sternum to which it was attached to the vertebræ, embracing at the upper part the heart, great vessels, and trachea. The posterior surface was concaved and arched across the vertebræ and esophagus. The thoracic contents (tumor, heart, lungs, etc.) weighed 3150 grammes.

Spleen large, soft, deep, red in color; weight 175 grammes.

Kidneys large, rounded in shape, deeply congested. Relation of cortex to pyramids undisturbed.

Liver firm, reddish-brown in color; weight 1775 grammes.

I obtained a portion of the growth and found it to be a small round-celled sarcoma. No trace of the needle could be found at autopsy, nor could the place of puncture be discovered.

The clinical features of the case that are of interest, aside from the physical signs, are the absence of any tangible cause, the apparently sudden onset of symptoms, the difficulty of positively excluding the possible presence of pericardial effusion, the right-sided decubitus in spite of the left-sided effusion, the absence of dysphagia, change of voice and pupillary signs, the pressure palsy of the right arm, and the slight inconvenience produced by the presence of the fragment of needle within the chest. The clinical diagnosis was tumor of the lung, probably secondary, with pericardial involvement, the only reservation being absence of involvement of pulmonary structure. This freedon of involvement of lung tissue proper was suggested by the complete absence of blood in the sputa.

The sudden onset of symptoms did not cause us to exclude neoplasm, as such an onset is not entirely unknown, the chief difficulty being to explain the man's ability to be about with such serious mischief going on within his thorax. The presence of pericardial effusion

was several times considered, but was excluded by the good condition of the pulse, the position of the point where the sounds were best heard (at the normal position of the apex-beat), and the fact that the symptoms were throughout pulmonary rather than cardiac. Although at autopsy there was found to be fluid in the right pleural cavity, during life the signs of extrapulmonary pressure were all upon the left side. The absence of pressure signs is explained by the situation of the growth. That the paresis of the right arm was due to pressure by the weight of the body is certain. There was at no time evidence of cerebral involvement, and the paresis was accompanied by numbness and tingling of about equally rapidly increasing severity. The portion of needle that remained within the thorax was about two and a half centimetres long, and little heavier than the ordinary hypodermic needle. That it was in the pleural cavity is shown by the fact that the needle was broken by the approximation of the adjoining ribs, as was painfully evident to the hand holding the syringe.

From the pathological stand-point it is interesting to note the complete absence of metastasis to parts without the thorax. The only extrathoracic growth being the mass in the neck noted during life.

Case III.—*Primary Endothelioma of Left Pleura; Secondary Involvement of Lung, Pericardium, and Diaphragm.*—Jane M., white, aged 50 years, was brought to the Episcopal Hospital in July, 1894. She was wildly delirious on admission, and no history was obtainable from her. A friend of the patient said that she had been ailing since early in the preceding spring; but she could give no more definite facts in regard to her illness. On examination there was found to be absolute flatness from base to apex, anteriorly and posteriorly upon the left side of the thorax with great increase of resistance. There was, however, no marked respiratory distress. Preparations were made for tapping on the next day, or sooner if necessary, but the patient died before aspiration was attempted. She was extremely weak on admission, and steadily wore herself out in her delirium in spite of active stimulation. At autopsy the following notes were dictated:

Body that of a well-nourished woman. Rigor mortis well marked. A superficial scar over the right patella. There is a large amount of subcutaneous fat of normal appearance. Costal cartilages not ossified.

Organs of abdomen in normal position. Vermiform process points upward and runs directly behind the cæcum.

Pericardium contains the normal quantity of fluid. The visceral pericardium is normal. Parietal pericardium normal save for the presence upon the surface, at the left, of whitish plaques of cartilaginous hardness, firmly binding pericardium to left pleura.

Both auricles filled with currant-jelly clots; chicken-fat clots protrude from the cut ends of the pulmonary artery and from the pulmonary veins tough ash-colored clots. The heart is considerably larger than the patient's fist. Considerable amount of subpericardial fat. Foramen ovale closed. Tricuspid orifice admits three fingers. Right ventricle contains tough, adherent, ash-colored clots. Wall of right ventricle measures seven millimetres in thickness; the muscle of good color. Endocardium and valves of right heart normal in appearance. Left auricle normal. Mitral orifice admits two fingers. Left ventricular wall measures fifteen millimetres in thickness; the muscle dark. Endocardium of left ventricle opaque and gray. Mitral valve leaflets thickened at edges; aortic leaflets thickened at bases. Very early atheromatous change at root of aorta. Weight of heart freed from clots ten and a half ounces.

The right pleural layers are united by a few old string-like adhesions. The left pleura was inseparable and was removed with the lung.

Right lung slightly emphysematous; everywhere crepitant; slightly edematous; weight eleven and a half ounces. Left lung had to be removed with its pleura by cutting it away from the thoracic wall through tissue of cartilaginous hardness. The left lung was so firmly united to the diaphragm that the latter had also to be removed with the mass. In removing the lung the finger broke into a cavity in the lower portion of the thickened pleura(?). This cavity emptied itself before removal could be accomplished and the nature of its contents could not be ascertained. The lateral and posterior surface of the mass removed from the left side of the chest shows distinct markings of ribs and intercostal spaces; the median surface shows enlarged bronchial glands; the lower surface shows the adherent diaphragm with infiltration thereof, and the presence on its inferior or abdominal surface of cartilaginous areas of infiltration. Section of the mass shows in the centre compressed lung tissues of chocolate-brown color occupying an area measuring six centimetres by eleven and a half centimetres, surrounded entirely by white dense tissue measuring at different parts from five millimetres to two centimetres in thickness. On the cut surface are numerous sections of bronchi from which pus exudes on pressure. In the centre of the mass of lung tissue is a group of pale solid points (carcinoma or catarrhal pneumonia?). At the upper part of the mass the lung can be separated from the encasing dense white tissue by the use of but little force.

Glands in the posterior mediastinum not enlarged.

Pancreas, adrenals, spleen, esophagus, trachea, and larynx perfectly normal.

Kidneys similar. Both ureters and all vessels normal. Both organs large; cortex diminished; cut surface pale; vessels of cortex too distinct. Capsules stripped off readily.

Stomach normal save for some intense submucous ecchymoses in region of cardia. Duodenum and other parts of intestinal tract normal.

The fundus uteri is large and retroflexed. Appendages on right side low down in pelvis, on left side displaced slightly downward. Parovarian cyst of small size on right side. Cervix large, mucous membrane congested; unilateral laceration.

Liver weighs three pounds seven and a half ounces; surface normal. On section the cut surface is slightly marbled and pale with reddish mottling. Evident fatty change present.

Sections of the mass in the left side of the thorax, of the nodules in the left lung, in the pericardium, and diaphragm were kindly made for me by Dr. David Riesmann. Sections of the cervix uteri were also made. No sign of any malignant formation was found in the latter. In sections from all of the other parts mentioned there was found to be a stroma of connective tissue containing in its meshes epithelioid cells. In the sections from the white mass encapsulating the left lung there was much dense connective tissue containing a rather small relative number of nests of epithelioid cells. These cells are of quite irregular shape and size, the prevailing type being large, with a well-stained nucleus situated near the centre and with a proportionately large protoplasmic mass surrounding the nucleus.

The growth was manifestly primarily located in the left pleura. This is shown not only by the greater size of the growth in that membrane, but also from the method of its involving neighboring tissues (lung, diaphragm, and pericardium) on all sides in about equal degree. That it was a primary growth of the lung secondarily involving the pleura can hardly be thought of in view of the distribution of the pulmonary growths, their small size, and the distinct absence of extensive involvement of the organ. Careful search was made for any other seat of primary malignant growth, but without success. The tumor was evidently therefore a primary tumor of the pleura.

The microscopic appearance is that typical of carcinoma. The absence of any epithelial structure in either normal or pathological pleural tissue, save in case of secondary growth of malignant epithelial tumors, and the character of the cells present in the sections class this tumor among the endotheliomata.

Whether this variety of growth should be designated carcinoma or sarcoma is still an open question. It seems to the writer that the endothelioma present in this case shows no essential difference in

its manner of growth and its arrangement of cells from epitheliomata save for the rather different type of the cells forming the nests. It would seem, therefore, that the classification of the endotheliomata with the sarcomata depends entirely upon embryological grounds, and apparently embryologists are not agreed among themselves in regard to the precise origin of the endothelium from the layers of the blastoderm.

THE VALUE OF A ROUTINE EXAMINATION OF THE URINE.[1]

By M. H. Fussell, M.D.,

Philadelphia,

Physician in Chief to the Medical Dispensary of the University of Pennsylvania.

When I was still a student at the University, and was attending a lecture at Blockley, one of the lecturers, a good old man, said, "Gentlemen, I have no faith in the doctor who cannot make a diagnosis without forever having a test-tube in one hand and a bottle of urine in the other."

I make use of this literal quotation because I believe that the doctor who constantly has the means at hand for examining urine and regularly examines each patient's urine will make the fewest mistakes. What I have to say is not new, there is nothing startling about it, it is only one of the requisites of a careful, painstaking physician,—all of which I trust you will acquire before you leave the University halls.

But it is, perhaps, less insisted upon than some of the now more important means of making a diagnosis, and for that reason I have chosen it.

I know from personal experience that fully 90 per cent. of the physicians in general practice, with whom I am acquainted, either do not know how to examine urine or do not do so. I have been told by men old in the profession that they have never looked through a microscope. For these there is the excuse of lack of education in the use of the microscope, but there is not the shadow of an excuse for the young man who once told me that he had graduated six years, and found it unnecessary to use his microscope in general practice.

[1] Read before the Barton C. Hirst Medical Society of the University of Pennsylvania.

You will be told, as I have, by young men and old men who are in practice away from the centres of education, and who have large remunerative practices, that urine examination is useless. Do not be misled by them. They make their diagnosis of nephritis when the patient is about ready to die, and not in the beginning, when the life can be saved.

All physicians, perhaps, make an attempt at examination of the urine when the symptoms point to the urinary organs, but it is not such an examination upon which I desire to lay stress.

Dr. Hirst tells you of the necessity of a urinary examination in all pregnant women, repeated every month, and later more frequently.

He doubtless tells you, also, that death from puerperal convulsions in one of your patients in whom you have had the opportunity to examine the urine and have failed to do so, if not legally, is at least morally manslaughter.

If obstetricians the world over recognize that it is the duty of physicians to examine in a routine manner the urine of pregnant women, physicians can profit by their teaching and extend it.

The urine examination upon which I wish to insist, I repeat, is not only examination of the urine in cases in which you suspect a kidney or bladder lesion, or urine examination in a difficult case to help clear up a diagnosis, but the methodical examination of the urine of *every patient* who comes under your care. If the case is a chronic one the repeated examination of that secretion, say at intervals of three or four months.

If you follow this advice in practice I can assure you that you will be able to save suffering to your patients, and in some instances a life.

The objection is made sometimes that a busy practitioner has no time to go into the fine arts and examine every case.

I answer that the physician who does not give each individual patient a thorough physical examination during his treatment, and a urine examination is but one of the parts of that examination, falls far short of his duty as a physician, and had best give up his profession for a calling with less responsibility. As a matter of fact, however, every doctor has the time if he will take it.

In the case of the young man just starting in practice no one will suggest, I suppose, the lack of time as an excuse. If you begin the practice when you are young, it will grow a part of your work, and not seem in any sense a burden. As your work increases, and there is more demand made upon your time, you can have an assistant to do the work for you, and I repeat that no man does his full duty to

his patients if he for any reason fails to examine the patient's urine.

That it is practicable, I know. I have carried out in my own private practice just exactly what I have advised you to do, as I for years have carried it out in my hospital work, where the urine of every patient is examined.

Another objection may be made that it is unnecessary. That you will spend your time in boiling normal urine. I answer that it is true that you will examine very many cases with normal urine, so many that you will sometimes say to yourselves this is useless, but finally you will come across a case in which a failure to examine would in all probability have led to a fatal result. Surely one such case discovered will repay you for weeks of work.

Every physician, perhaps, looks at the tongue, but often learns but little from it. He does so because it is the habit of physicians. Every doctor should just as methodically examine the urine, and they will usually learn much more from that than from the examination of the tongue.

In order that the urine examination may be done without trouble certain articles should be obtained. Either a special room should be set apart for the work, or where this is impracticable a portion of the office should be cut off with a screen, and the urine work done there.

I say this advisedly. It is not only cleanly, but does away with any appearance of parade of knowledge of technique, which quacks are so fond of displaying.

The necessary articles are few: (1) Test-tubes; (2) pipettes; (3) alcohol lamp, or Bunsen burner; (4) nitric acid; (5) litmus paper; (6) Fehling's solution (the copper solution in one vial, the alkaline solution in a separate vial); (7) microscope.

All of these articles are necessary. Many others are valuable, but you can get along with what I have suggested. All except the microscope are inexpensive. You can get a good working microscope, however, for fifty dollars, and if you have no money to buy one borrow the money, or go with fewer new clothes for a while and purchase it. At any rate, do not begin practice without having the use of a microscope.

In your work examine the urine for albumin thus:

(1) Pour the urine into a clean test-tube, boil it, and add nitric acid drop by brop, still boiling, until you either have a white flocculent precipitate, or fail after having added several drops of acid to obtain one.

(2) Pour nitric acid into the tube and carefully allow urine to run down the side of the test-tube and settle upon the acid.

A white opaque ring denotes the presence of albumin.

Test every specimen for sugar by mixing your Fehling's solution equal parts out of the two vials, add an equal quantity of water, and boil. Then add the urine drop by drop. The presence of a yellow or red precipitate denotes the presence of sugar.

Examine every specimen microscopically. While not absolutely necessary where you do not find albumin, it will save you much annoyance. Of course, a microscopic examination is necessary where albumin is found, for the mere presence of albumin does not denote nephritis. The presence of tube-casts will make your diagnosis certain.

After these preliminary remarks allow me to submit the following cases from my actual experience. No one can have such decided views as I have expressed without in some manner having had experience. Mine has been large, and I have given you my views because I in my time have made the error of doing as others have done. Some of these cases redound to my glory, others have decidedly the other aspect.

Case I.—Emma P., a child 2½ years of age, came under my care with the following symptoms: The child was perfectly well until a few hours before I was called, when she was suddenly seized with high fever. The throat was sore and the cervical glands much swollen. No physical signs in chest or abdomen. On the second day the child was better, temperature 102° F. No abnormality of urine flow was noted. On the third day the urine was examined, found to be half by bulk of albumin upon boiling, and to contain very numerous tube-casts, blood, and epithelium. The patient was at once put upon appropriate treatment and recovered. To-day she is 8 years old, a healthy appearing child.

This case in its subsequent course illustrates the necessity of long-continued urine examination in such cases. Although almost six years have passed since the primary attack, and the child is active, with rosy cheeks, and has the appearance of perfect health, the least febrile attack causes the appearance of albumin and tube-casts in the urine. Unless a routine examination of the urine had been made, the real condition would not have been discovered, for there were no symptoms which would have attracted attention to the kidneys.

Case II.—Jane H., aged 40 years. I was called to see this patient, with an acute pneumonia, supervening upon an old consolidation at the left apex. Unquestionably the lung lesion was tuberculous in character; the tubercle bacilli increased in numbers in the sputa, and the temperature range was that characteristic of tubercu-

losis. The patient finally recovered with a badly lamed lung, but continued in remarkably good condition for four years. Her urine was examined during the attack and found normal. I saw the patient during her comparative health, at intervals of perhaps two or three months, but never again examined her urine until her fatal illness.

One night, a few weeks ago, I was called at midnight with the word that the patient while enjoying her usual health had suddenly complained of headache, and a few minutes before I was called became unconscious. I found her in convulsions with the curious pulmonary edema which usually accompanies such conditions.

I catheterized her and found the urine turn absolutely solid upon boiling, and on examination it contained tube-casts. In spite of vigorous measures the patient died in eight hours.

Here was a patient suffering from ordinary phthisis, without a single symptom of any kidney lesion.

If I had done in this case as I make a habit of doing, and had made regular urine examinations, probably her life could have been saved. At any rate the horror of such a death would have been averted.

Case III.—Mrs. K., primipara, called upon me on July 15, 1893, to engage my services in her coming confinement, which was expected to occur in two months. She was apparently perfectly well; there was no edema, no headache, and she had absolutely no complaints to make. I directed her to send me a bottle of her urine. Early the next morning I was hurriedly called to the lady and found her in convulsions; the urine was loaded with albumin and casts. She had arisen that morning with a slight headache, had prepared her husband's breakfast, and gone to the bedroom, where she was found unconscious a short time afterwards.

I hurriedly dilated the cervix and delivered the woman. Several convulsions occurred after the labor, and the patient was delirious for several days; after a tedious illness she finally recovered.

Case IV.—Mrs. C. This case occurred on the night of the day in which Case III was delivered. I was called at midnight, found a pregnant woman with severe abdominal pains. I examined carefully, could not discover that the pains were uterine; gave her a hypodermic injection of morphine, ordered a specimen of urine for next morning, and left her in the morning comfortable and without any unusual symptoms. I went at once to my office (for the terror of Case III was still fresh in my mind), examined the urine. Much to my horror, the urine was fully half, by bulk, albumin and contained casts. I obtained an assistant, drove back to the home of the patient, a dis-

tance of several miles, and found the woman comatose. We at once delivered the woman easily (labor had already begun), but a most furious post-partum hemorrhage occurred, and the woman died in a few hours.

Both of these cases could have been saved, the one from frightful suffering, the other from death, if the opportunity for urine examination had been given. They both illustrate in a most forcible and unusual way the necessity of routine urine examination. Fortunately, I have nothing with which to charge myself in the cases, for I did not know of the pregnancies until I was called in as I have stated. Neither of them showed any of the usual symptoms of kidney involvement.

Case V occurred at the Medical Dispensary of the University of Pennsylvania. John M., aged 50 years (these notes are from memory, but fairly accurate), came with the following history: He had been well until five years previously; at that time he began to suffer to a slight extent from dyspnea on exertion; there was frequent urination. No loss of flesh, but the chief symptom was asthma. He would be perfectly well until suddenly, without any known cause, he would have frightful asthmatic attacks, which would last for half an hour and as suddenly disappear.

Physical examination discovered lungs normal, arteries hard, heart somewhat hypertrophied, second sound accentuated, no murmurs. Examination of urine showed specific gravity 1010, albumin, and granular casts.

The case was diagnosed as one of interstitial nephritis with asthmatic attacks (renal asthma).

The man was put upon nitro-glycerin and iodide of potassium, with the result of immense relief. He was kept under observation for two years, and finally succumbed to his nephritis.

It is true that this case suggested the involvement of the kidney, and the urine would have been examined for these symptoms alone. It is also true, however, that the patient had been treated by various physicians for ordinary spasmodic asthma without the least relief. If these physicians had done as I have urged you to do they would not have made the mistake they did.

Case VI.—Mrs. F. is now under my care, is four months pregnant with her tenth child.

I have attended her in seven of the labors, and, except a slight albuminuria on one occasion, there have been no complications.

She called a few weeks ago complaining of weakness and nervousness, which were most unusual to her. Physical examination showed nothing to account for the condition.

Urine examination showed 4 per cent. of sugar.

On questioning, I then discovered that there were great thirst and an unusual consumption of potatoes.

I at once cut off the starches and put her on codeine, with the result that at the present time, eight weeks after beginning of treatment, her urine is free from sugar.

Unquestionably this is a case of artificial glycosuria, dependent upon her consumption of potatoes. It nevertheless shows the value of a urine examination, not only for albumin but for sugar. If the condition had been allowed to proceed, bad results would unquestionably have followed.

These are six cases taken at random from my books, which illustrate the necessity of a routine examination of urine. In five of them there were no symptoms to direct one's attention to the urinary secretion.

To conclude:

(1) Examine the urine of every patient when he comes under your care.

(2) If the case be a chronic one, make urine examinations at stated intervals whatever be the ailment.

(3) Always examine the urine for albumin, for sugar, and microscopically.

GUAIACOL IN PHTHISIS, WITH SPECIAL REFERENCE TO THE HYPODERMIC USE OF THE DRUG.

By A. A. Stevens, M.D.,

Philadelphia,

Lecturer on Terminology and Instructor in Physical Diagnosis in the University of Pennsylvania.

For nearly twenty years creosote has been extensively employed as a special remedy in the treatment of pulmonary tuberculosis. In these years scores of remedies have been vaunted as specifics, but not one has secured more than a passing notice, while, on the other hand, creosote has steadily gained in favor.

It is doubtful if the drug possesses any antibacillary properties, but it cannot be denied that under its use patients frequently gain in flesh and strength, and suffer less from fever, cough, expectoration, and night-sweats. Creosote, however, is not free from disadvantages; to some its taste is intolerable, and not infrequently it disturbs the stomach to such an extent that its use must be abandoned. Recently

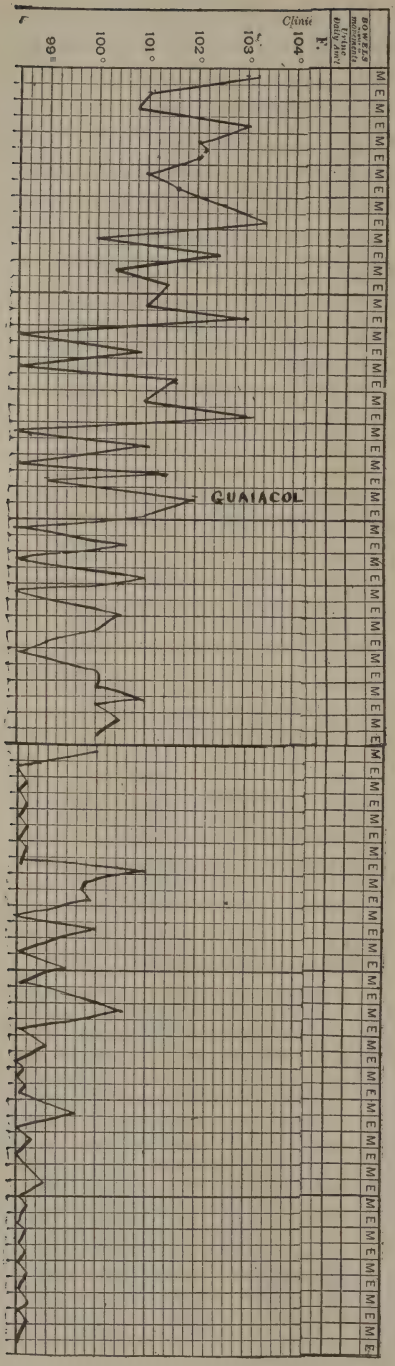
guaiacol and its derivatives have been employed as substitutes for creosote, and so far as my own observations go, they seem to be quite as efficient as the latter, and far more acceptable to the stomach. This is especially true of guaiacol carbonate, an odorless, tasteless, crystalline substance, which can be administered conveniently in powders or capsules. Five grains of the carbonate may be given three times a day, after meals, the amount being gradually increased to half a drachm or even a drachm in the twenty-four hours. In my own experience the best results have been noted when the daily dose has averaged from thirty to forty grains. Very encouraging results are sometimes observed when these doses are maintained for a period of three or four months. In a few instances in which every indication suggested slight phthisical consolidation at one apex of the lung, the symptoms entirely disappeared, and the restoration to health seemed to be complete.

Unfortunately, however, when the fever is high and the pulse rapid, the administration of guaiacol by the mouth is often productive of but slight improvement. Under these circumstances I have applied the drug externally to the chest, but the results have been very unsatisfactory. The fall of temperature is abrupt and excessive, and usually accompanied with copious perspiration. In one instance the external application of guaiacol caused a serious collapse. Guaiacol has been employed hypodermically in sterilized oily solutions by Gimbert, Picot, Rosenbusch, and others, but these solutions are bulky and difficult to prepare.

Schetelig [1] was the first to show that a vehicle was unnecessary, and that pure guaiacol could be administered hypodermically without untoward effects. Acting upon Schetelig's suggestion, Coghill [2] has employed the drug repeatedly in this way since 1889 with excellent results, and in many hundreds of inoculations he has never met with a troublesome complication. Since the appearance of Coghill's paper I have tested the treatment in a number of cases of advanced phthisis, many of which were very unpromising, and the results have been decidedly beyond my expectations. One patient in particular, a girl, with both apices extensively involved, and who suffered from copious sweats, which resisted all the ordinary remedies, gained within five weeks twelve and a half pounds, and secured absolute relief from her troublesome complication. A single dose of three minims was injected deeply into the buttock each day before the diurnal rise of temperature began, and the amount was cautiously increased to five, and in some instances to seven minims. The buttock was selected

[1] Deutsche medicinische Zeitung, February 2, 1889.
[2] The British Medical Journal, March 7, 1896.

CASE I.



because there is little danger in that locality of introducing the needle into a large vein.

A few minutes after the injection a warm perspiration follows; this, however, is not copious, and rarely lasts more than an hour. On the other hand, the night-sweats almost invariably diminish. No more pain is experienced from the injections of guaiacol than that which follows the subcutaneous administration of other drugs. More than a hundred injections were given by Dr. Glasgow, the resident physician in charge of the cases at St. Agnes's Hospital, and in two instances only was there any complaint on account of the pain. Such untoward effects as abscess, sloughing of the tissues, collapse, and drenching perspiration were never encountered.

In nearly every case there was some improvement, especially in the fever and sweating. It will be observed from the accompanying temperature charts that the decline in the temperature is not sudden, but gradual, sometimes several weeks elapsing before the norm is reached. In some cases the injections must be continued for several weeks, or, according to Coghill, for two or three months, before any decided improvement is noted. In my own cases, creosote, guaiacol or guaiacol carbonate were administered by the mouth at the same time that the injections were being used.

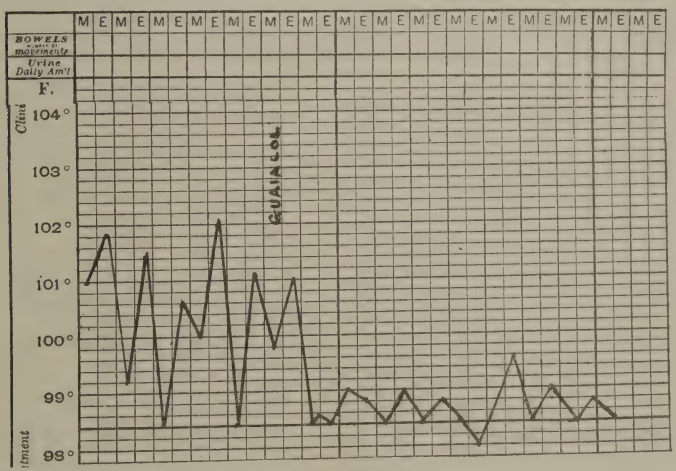
As hypodermic medication is always more or less inconvenient, it

would be well, perhaps, to restrict the subcutaneous administration of guaiacol to those cases of phthisis in which the febrile process resists the ordinary methods of treatment.

I have selected the following cases to illustrate the effect of the treatment on the temperature.

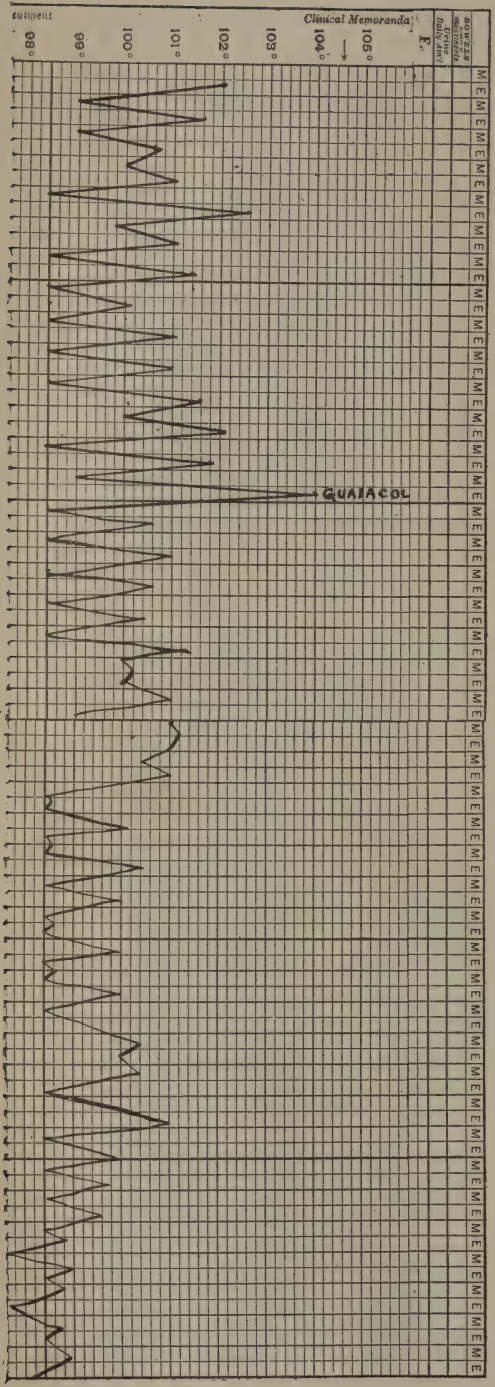
Case I.—M. C., aged 25 years, housemaid, admitted March 10, 1896. Father, mother, two sisters, and one brother living and well. One brother died of consumption. She was healthy until one year ago, when cough developed. At present cough is very distressing, the expectoration is heavy and nummular. The day before admission she expectorated blood. Night-sweats have been profuse for nearly three months. The patient is very anemic and considerably emaciated. The fingers are clubbed. The vocal fremitus is increased over both apices. Over the left apex the note on percussion is dull, over the right a cracked-pot sound is elicited. Moist râles are heard over both lungs. The breathing over the left apex is bronchial, over the right, it is cavernous and is associated with pectoriloquy. On admission the evening temperature was 103° F.

Case II.

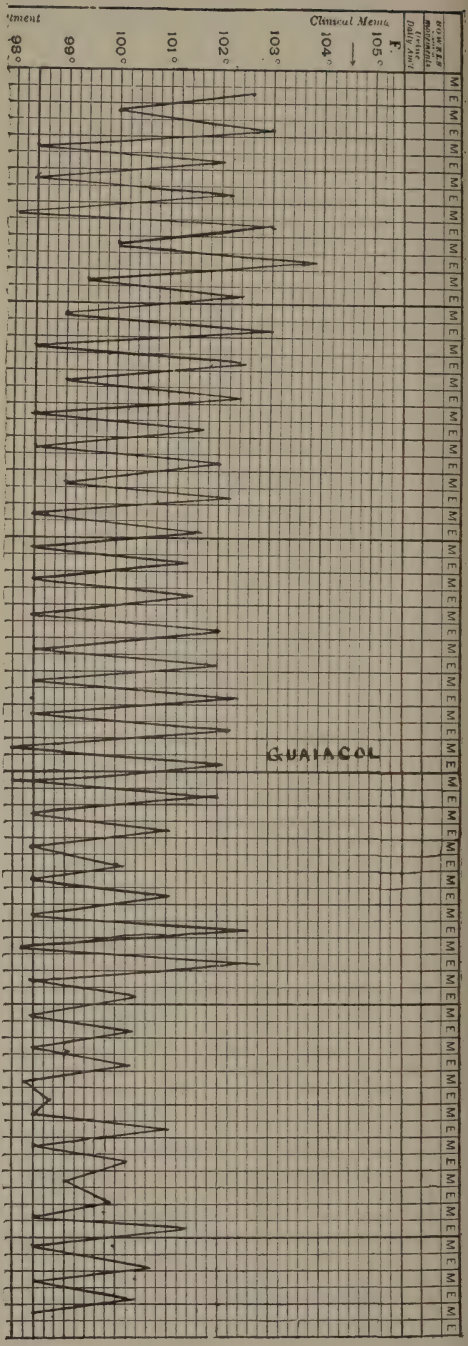


Case II.—J. M., carpenter, aged 28 years, admitted March 1, 1896. Mother died in childbirth. Father living and healthy. Several brothers and sisters died in infancy. He had, when a child, whooping-cough, measles, and scarlet fever. He has had a cough for four years, and in this time has lost twenty-five pounds in weight. No history of hemoptysis. Night-sweats are frequent and profuse. The expectoration is heavy and yellow, but not copious. The even-

CASE III.



CASE IV.



ing temperature on admission was 101⅘° F. The patient is anemic and somewhat emaciated. The chest is phthisinoid in shape. The pulse is weak. The heart-sounds are normal. The fremitus is increased over both apices, especially over the right. The note on percussion is dull in the same localities, anteriorly and posteriorly. The breathing is bronchial and associated with subcrepitant râles.

Case III.—V. C., aged 37 years, driver, admitted February 27, 1896. Mother died of old age. Father still living and in good health, although 70 years of age. One brother died of phthisis. One sister died of "heart-disease." One sister is living and well. The patient has had a troublesome cough for year and a half. Last summer he had eighteen hemorrhages. The expectoration is very thick and especially abundant at night. He has never had night-sweats. Appetite is good and digestion normal. During the last six months he has lost much flesh. On admission the evening temperature was 102° F. The chest is fairly well formed. The scapulæ are somewhat prominent. Expansion is good. Examination of the right lung reveals increased fremitus, a cracked-pot sound on percussion, and cavernous breathing with bubbling râles on auscultation. Examination of the left apex reveals slight dulness, increased fremitus, and broncho-vesicular breathing.

Case IV.—T. E. C., aged 29 years, actor, admitted February 22, 1896. Father died of gastric cancer. Mother died of phthisis. One brother died of phthisis. One sister is living and well. One sister died from the effects of a burn. He has had a cough for nine months. The sputum is yellow, heavy, and abundant. He has occasional night-sweats. There is not much emaciation. The chest is phthisinoid in appearance. There is a distinct lack of expansion over the right side anteriorly; over this side the fremitus is increased anteriorly and posteriorly. Percussion yield dulness in the right supraclavicular region, and anteriorly as far down as the fifth rib. Over the dull area the breathing is bronchial. Signs of slight solidification are also noticeable over the left apex posteriorly. The evening temperature on admission was 102⅗° F.

From the foregoing the following conclusions can be justly drawn:

(1) That guaiacol can be safely administered hypodermically without the aid of a vehicle.

(2) That the antipyretic effect of the drug in phthisis can be best secured by its subcutaneous administration.

(3) That the favorable influence on the course of phthisis of guaiacol exhibited *per os* is often more pronounced when the drug is given hypodermically.

A FOREIGN BODY IN THE ESOPHAGUS DETECTED AND LOCATED BY THE RÖNTGEN RAYS.

By J. William White, M.D.,

Professor of Clinical Surgery in the University of Pennsylvania; Surgeon to the University and Philadelphia Hospitals.

In Poulet's classical work on "Foreign Bodies in Surgical Practice" he states that the section on the esophagus is based on a study of more than one thousand cases of foreign bodies impacted in that canal. He enumerates nearly one hundred different articles, but, possibly because it is of more modern origin, the list does not include the metal plaything known as a "jack-stone," which in size and shape seems peculiarly adapted to become an intruder difficult of dislodgement (Fig. 1).

On May 12, 1896, Annie ——, a patient of Dr. Taubel's, aged 2 years and 5 months, began to complain of pain in swallowing and to reject food. Milk and water were taken reluctantly, but solids and semisolids were obstinately refused, or if swallowed were vomited after a few minutes. No positive explanation of these symptoms was known, but it was found that one of a set of "jack-stones" with which the child had been playing was missing. Various forms of treatment were employed for twelve days, and on Friday, May 22, the child was brought to me at the University Hospital. She was in fairly good condition, but had a temperature of 100° to 101° F., a pulse of 130, and was beginning to show the effect of semi-starvation. I at once made arrangements to have a skiagraph of the thoracic region taken by Professor Goodspeed. This was done on May 23. The exposure was for three minutes. The child's arms were held up. The plate was fastened to her back. The result (as will be evident by reference to Fig. 2) was most satisfactory. The "jack-stone" could be seen a little to the left of the middle line, apparently on a level with the space between the second and third dorsal spines,—*i.e.*, a little above the bifurcation of the trachea. Its peculiar shape and its absolute opacity to the rays made it a very striking and easily identified object in the picture.

The diagnosis being thus assured, the child was prepared for operation on the following morning, May 24, by thorough disinfection of both the neck and the upper abdomen. At the operation I had the kind assistance of Drs. Penrose, Wood, Leonard, and Frazier.

For reasons which will presently be stated, after a preliminary attempt to reach the body with various forms of esophageal forceps had failed, it was determined to do a gastrotomy. The abdomen was

FIG. 2.

FIG. 1.

"Jack-stone," exact size.

Skiagraph of a "jack-stone" which had been impacted in the esophagus just above the left bronchus for twelve days.

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opened in the middle line above the umbilicus, the stomach drawn out, the general peritoneal cavity excluded by pads, and an incision made through the stomach wall a little to the right of the splenic end and about midway between the upper and lower borders. A finger introduced soon found the cardiac orifice; a slender flexible esophageal explorer carrying a stout silk thread three feet in length was then pushed downward through the pharynx, and with some difficulty was made to pass the obstruction and enter the stomach. One end of the thread was then hooked out of the wound and the instrument was withdrawn, leaving the other end hanging out of the mouth.

Pledgets of gauze of various shapes and sizes were then firmly knotted to the thread and were drawn upward or downward, most of them being firmly arrested at the point of obstruction, some of them passing through between the bars or spokes of the "jack-stone," but leaving it unmoved. In a few minutes, however, a piece of gauze brought the latter with it into the stomach, from which it was readily extracted. A continuous catgut suture of the mucous membrane and a continuous silk Lembert suture through the peritoneal and muscular coats, inverting the wound, completed the operation, which, including the final closure of the abdominal section, occupied a little less than half an hour.

The child is making a rapid and uncomplicated recovery. She got no food for twenty-four hours; then half-ounce enemata of peptonized milk were begun, and a little later beef peptonoids by the mouth, soon followed by albuminized water and peptonized milk in twenty-drop doses.

There is not much to add to this brief account of a case which acquires especial interest from probably having been the first in which the skiagraph has been used in this particular manner. I may, however, call attention to its advantages: (1) In diagnosis, (2) in locating the foreign body, (3) in selecting the form of treatment.

(1) The diagnosis in these cases has hitherto necessarily been made on the history, the subjective symptoms, and the recognition of the foreign body upon instrumental exploration. The history in large classes of patients is either altogether lacking or is untrustworthy. It is obvious that in very young children and in intoxicated persons it cannot usually be obtained; and that in lunatics and hysterical patients it is apt to be unreliable or positively misleading. But outside of these examples there are on record many curious instances of reasonable doubt as to the history of such cases. Anxious parents and nurses have often convinced themselves and the medical attendant that some article which has disappeared must have been swallowed by a child; mischievous children have pretended to have symptoms

resulting from the presence in the throat or stomach of a foreign body, which they have described in much detail, but which did not exist; even very intelligent patients have found themselves in circumstances which strongly suggested an accident of this character, but which neither proved nor disproved it.

Two months ago the head-master of a large preparatory school, a teetotaler, called to see me in a state of some mental perturbation. He wore habitually a plate carrying three artificial teeth. He was in the habit of removing it at night and putting it in a glass of water. The previous night he had been very tired and sleepy and had gone to bed without doing this. He thought he remembered that just before going to sleep he had removed the plate and had reached over the side of the bed and laid the plate gently on the floor. In the morning, however, there was nothing to be seen of it. No one else had been in the room. The plate could not be found and has never since been seen. It was probably carried away by a mouse or rat. An examination of the pharynx showed no sign whatever of the passage of so large a body. It was interesting, however, to note that although he is an exceptionally well-balanced and intelligent man he was beginning to have a few subjective symptoms which were undoubtedly the result of auto-suggestion. A positive assurance as to the probabilities of the case completely dispelled them. In a hysterical person they would doubtless have become intensified and, finally, very misleading. In any case it would have been most satisfactory to look at a skiagraph that demonstrated the absence of the denture from the digestive tract.

Instrumental exploration, of course, adds greatly to the information derived from the history and the subjective symptoms. It shows obstruction more or less accurately, but, as a rule, does only that, and conveys no information as to the character of the obstructing body. A metallic ring or clink might be obtained by some of the ingenious electrical explorers that have been devised, but, as yet, they are both complicated and uncertain. Previously unsuspected cicatricial contraction sometimes develops obstructive symptoms with unusual suddenness, and, if the case had an uncertain history, might lead to error. Abscess in the esophageal region has been wrongly attributed to a non-existent foreign body. On the other hand, cases have been treated for pulmonary phthisis, for croup, for catarrh, for asthma, etc.,[1] the symptoms being due to foreign bodies which remained unnoticed.

Within the last few years Buttenberg has reported a case of death in an insane patient from an unnoticed piece of porcelain, Le

[1] Poulet, op. cit.

Dentu, from a pin, Williams, from a piece of bone, and many others have been recorded in which, as in these, the skiagraph would have given evidence otherwise unobtainable.

In the matter of diagnosis, therefore, it is obvious that when the intruding body has sufficient density to cast a definite shadow there will be many cases in which the mere proof of its presence will be of great value.

(2) The exact location of a foreign body can be determined more precisely by this method than by the most careful measurements with flexible instruments. The latter may bend or curve within the esophagus and thus give the impression of greater penetration and of a lower level of obstruction than actually exists. On the other hand, esophageal spasm or inflammatory swelling may stop a bougie or other explorer some inches above the position of the foreign body. Wallace, of Edinburgh, has recorded an interesting case in which so large a body as a denture of six artificial teeth could be discovered and located only after repeated negative results from the use of the ordinary esophageal olivary bougie and of the "coin catcher." A low esophagotomy proved a failure, and gastrotomy was finally required.

Moreover, repeated and thorough exploration, especially if combined with attempts at either extraction through the mouth or propulsion towards the stomach, is not without danger, and in a case of long standing like this one should be employed only with great care. Instances of fatal perforation of the esophagus during exploration have been sufficiently frequent to make this point one of practical importance.

By comparison with the ribs and the vertebræ the precise level of the foreign body, the relation to the bronchi, the great blood-vessels, and other important structures may be most accurately determined by the skiagraph, and both the dangers and the uncertainties of ordinary exploration may be avoided.

(3) As to the choice of method, it was, of course, apparent in this case that if extraction by forceps was not promptly and easily accomplished, the jack-stone would have to be removed either by means of an esophagotomy or a gastrotomy. Propulsion of an irregular body of that sort, which had been impacted for twelve days, was scarcely to be thought of. At first sight of the skiagraph, esophagotomy was suggested by the proximity of the jack-stone to the upper level of the sternum, but an examination of the short fat neck of the little patient showed that if the body were at all fixed it would be most difficult to dislodge it through the largest wound that could safely be made. Terrier long ago excluded from the cases to which

esophagotomy was applicable, all those in which the foreign bodies were situated in the thoracic portion of the canal, and as a matter of fact this is still a good working rule.

If it is of recent introduction and of regular shape, the foreign body in the thoracic esophagus, though inaccessible from the mouth, may be reached by forceps through an esophageal opening and extracted. But if it has occupied that portion of the canal for any length of time, and particularly if it is of distinctly irregular shape and of some size, offering an opportunity for firm impaction, it seems far better to make the original effort through the stomach, so as definitely to dispense as much as possible with instrumentation in the already inflamed and probably ulcerated esophagus.

The peculiar shape of the foreign body in this case facilitated the passage of the flexible explorer from the pharynx to the stomach. Even if the esophagus were completely filled, however, it would be safer and easier to dislodge the intruder by alternate pressure upward through the cardiac orifice and downward through the pharynx, than to trust to either extraction or propulsion through a wound in the neck.

It was made evident by the skiagraph that the jack-stone had passed the narrowing of the esophagus opposite the cricoid cartilage, and had been arrested above the level of the transverse aorta and left bronchus, each of which sometimes grooves the esophagus slightly at the point of contact. It was therefore peculiarly dangerous to attempt with any force to push it downward, as perforation of either of those structures would have been a possible, perhaps after twelve days' esophagitis a probable result. Between the position of the foreign body and the lowest opening that could be made in the cervical portion of the esophagus was a considerable interval through which in a neck as short and stout as this one little or nothing could be done with the fingers, and which is crowded with important vessels and nerves in close proximity to the canal itself. I am aware that a few cases of esophagotomy have been done for foreign bodies said to be about on a level with the top of the sternum (Syme, Cheever), but they are very few. In Syme's case the body was a copper coin, which gave rise to no obstruction; in Cheever's it was a brass pin, and a long probang passed without obstruction. In the latter case the operation was done on the third day.

On the whole, as I have said, thanks to the very definite information given by the skiagraph, it was not difficult to decide in favor of gastrotomy. The impossibility of moving the jack-stone in an upward direction by the means employed during the operation made the choice seem fortunate. The propriety of attempting extraction by

forceps, keeping the foreign body in view at the same time with the fluoroscope, had occurred to me, and was discussed at the time of operation, but the procedure was not employed on account of the general condition of the patient, which demanded haste, and also because the probable inflammation and ulceration of the esophagus was thought to be a contra-indication to the prolonged use of instruments in that canal. There will, however, in all likelihood, be many cases seen earlier in which this method will be applicable.

I have been much impressed by the practical importance of the Röntgen ray process in surgery, but in no instance more than in this, where, in a case in which every hour had become valuable and every effort at exploration dangerous, it substituted accuracy and promptness for otherwise unavoidable uncertainty and delay.

STUDIES ON THE PATHOLOGICAL ANATOMY AND THE DIFFERENTIAL DIAGNOSIS OF LEPRA.[1]

By W. Havelburg, M.D.,

Rio de Janeiro, Brazil,

Director of the Bacteriological Laboratory Hospital, dos Lazaros.

Zambaco, the great student of lepra, writing about this disease, quotes the following facts:

An individual of the name of Marés was presented to the hospitals of Paris, during more than seven years, as suffering of Morvan's evil. Professor Hayem was the first to make that diagnosis, and Dr. Monod accepted it, and amputated successively divers fingers of the patient. The history of Marés[2] was published as a typical case of Morvan's evil by Monod and Raoul; afterwards the patient betook himself to a ward of surgery which was in charge of Dr. Broca; there, too, the diagnosis was confirmed, and again several fingers were amputated. Broca[3] described this case as a type of Morvan's disease.

Presently other fingers were affected as signs of pareso-analgesia; the patient returned to the Hayem ward, where another finger was amputated; a few months later Marés reappears in the Salpêtrière, ward of Professor Charcot.

Here he becomes the object of minute study; the history of his

[1] Estudos sobre a anatomia pathologica e o diagnostico differencial da Lepra Nervosa Relatorio apresentado pelo Dr. W. Havelburg, ao Illm. Sr. Julio Cesar, de Oliveira Provedor do Hospital dos Lazaros em 1895. Translated and contributed to the University Medical Magazine, by Albert S. Ashmead, M.D., New York.

[2] Archives de Médecine et Chirurgie.

[3] Gazette hebdomadaire de Medicine et Chirurgie.

disease, in all the details of its course, is subjected to the most careful examination, the patient, several times photographed, is commented upon, in clinical lessons, and during eleven months presented to the students and foreign physicians, who used to crowd around the learned doctor.

At first Charcot had presented Marés as suffering of Morvan's disease, which he distinguished from syringomyelia; but later on, struck by the great similitude existing between the principal symptoms of both diseases, he changed his mind, and considered Morvan's disease as a variety of syringomyelia.

The patient went through all the hospitals of Paris, and was a subject for all the investigators of Morvan's disease. This diagnosis was made repeatedly and confirmed by the first authorities, especially by those who had written the best treatises on syringomyelia and Morvan's disease, and who, by the weight of their names, had so much contributed to make of these diseases two distinct pathological entities.

Afterwards Marés entered the hospital of Bicêtre, ward of Dejérine, also an authority on neuropathological questions, who has published important works on syringomyelia and Morvan's disease, and who, dissenting from Charcot, was of opinion that these two diseases are not one. The diagnosis of this physician was Morvan's disease. The photographs of Marés may be seen in the iconography of the Salpêtrière as a case of syringomyelia, group Morvan's disease.

Dr. Gombault, after making several times an histological examination of Marés's amputated fingers, without positive result, came also to the decision that here there was Morvan's disease.

In fact, however, Marés's is a vulgar case of *lepra mutilans*. Zambaco ferreted out this patient in his lodgings, examined him, and diagnosed lepra.

For better guarantee, he presented the subject to the doctors of the hospital Saint Louis, who have some opportunity of seeing lepers in Paris, and were consequently more competent in this case. Vidal, Besnier, Fournier, Hallopeau, Quinquaud, Du Castel, Tenesson, in one word, all the authorities in dermatology, came together, at the request of Zambaco, examined Marés, without knowing the antecedents, not even the name of the patient, and without hesitation, without discussion, declared unanimously that this was simply a case of leprosy. In this patient, lepra, in its last stages, developed itself in such a manner that the diagnosis was manifest.

A short time afterwards, Pitres, a disciple of Charcot, in a communication made to the Academy of Medicine, on a diagnosis of

syringomyelia, erroneously made by him, after relating the history of Marés, said that, several months before the publication of Zambaco, he gave to his scholars a lesson on syringomyelia and presented a subject as an example of this disease; having, however, taken cognizance of Zambaco's communication, that among the cases of syringomyelia there existed some of lepra, he took care to examine his patient again, and found out that here also was a case of lepra.

This opinion of Zambaco, accepted by Pitres, has since been verified by many other physicians. Among others I shall relate the following interesting case: A patient, who had come from Tonkim, was presented to Zambaco by Potain; both physicians agreed that it was a case of lepra, although the patient had passed for some time for a case of syringomyelia. The diagnosis was subsequently confirmed by a jury of professors and one student; in fact, in the course of time other symptoms developed in this subject, which put the diagnosis of leprosy beyond dispute.

On May 18, 1893, Du Castel presented to the Société de Dermatologie a case, lepra or simili-lepra, in a patient from Dieppe, who had never left France.

Discussion elicited a great divergency of opinions, because there was no leper bacillus; later, however, the course of the disease confirmed the diagnosis of lepra.

These facts which happened under the eyes of so important authorities show how many difficulties surround sometimes the diagnosis of lepra, and for this reason we shall endeavor to describe in the following pages the principal symptoms and the anatomical processes of nervous lepra, basing ourselves on anatomical and histological observations and studies of our own and of other investigators; and then we shall endeavor to make the differential diagnosis between leprosy and divers diseases, whose symptoms are somewhat similar. It is clear that this question has not only a scientific value, but also great practical importance.

Since the remotest times lepra has had a large number of classifications; the principal, however, is that which divides it in maculosa and tuberculosa. Either—especially the maculosa—admit a series of subdivisions, as, maculosa alba, maculosa nigra, anesthetica, atrophica, mutilans, etc., according to the prevailing symptoms. The observers of the past recognized that all these forms were one and the same disease; they observed, however, that each of them showed symptoms or complications of a special character, and in order to establish a certain degree of clearness they were obliged to make a classification.

It was reserved to the improvements of the microscope, especially

in the last decades, to give us the means of explaining pathologically, in some measure, at least, this multiplicity of forms assumed by a single disease; it is, in fact, Hansen's discovery of the specific leper bacillus, which must be taken as point of departure for all classifications.

In this respect the same thing happened with lepra which happened with tuberculosis. A large number of diseases which formerly were considered as different morbid entities, as, for instance, pulmonary phthisis, certain ulcerations of the bones, the tubercular arthritis, lupus, the scrofulous adenites, and the cadaveric tuberculus, are now admitted to be of the same nature, inasmuch as in all is found the specific bacillus, as cause, the same pathological alteration is found in these diseases, hardly modified by the diversity of the soils. We cannot only presume, but verify the same thing in relation to lepra, but however different may be all these forms of disease, we always meet the same bacillus, or its pathological product—the leprous cell —which forms the uniting link between them,—that is, a single cause.

To-day, no one has any reason for preserving the ancient lepra classifications: is lepra every disease in which the specific bacillus is found, and *vice versa*, any disease to be classified as lepra must show the specific bacillus. Wheresoever this micro-organism nestles appear at once the leprous cells, which, increasing, forms tumors of granulations. These tumors may assume different volumes, but finally they pass by inflammatory and retrogressive metamorphoses, among which the most important is suppuration. Whether this process takes place in the skin, the mucus, the organs, superficially or within the tissues, the pathological process is always the same, only the consequences are different according to the localities: in the skin takes place the formation of tumors or ulcerations and the infiltrations of the conjunctive tissue, resulting accidentally from all this in the articulations, especially in those of the fingers, and the strangulation and mutilation of the latter; the same thing happens in the larynx, the symptoms of stenosis may appear, etc.

It is much more difficult to give a single explanation of the symptoms which are observed in leprosy in relation to the nervous system; it is what we are going to do, describing the result of the anatomical investigations made in it.

Basing ourselves on our literary knowledge, we may say that never were any alterations found in the brain and its membranes. In the divers autopsies made by us nothing special was ever discovered there.

Also, in relation to the spinal cord our investigations had a

negative result; some preparations are still in the liquid in which they are to be hardened; however, the eye discovers nothing abnormal.

In the anatomical collection of the celebrated Bergen Hospital, published by Looft, there appears to have been found in two cases a degeneration of the posterior columns; once principally in the cervical part, while the lumbar region was relatively free; in another case in the lumbar region. Besides, there were found in these pieces very pronounced atrophies in the posterior radices, many fibrinous degenerations, as, disappearance of the myelina from the nervous fibres, alterations in the ganglional cellulæ, and in the spinal ganglions themselves. The anterior horns with their cells and radices were found normal; in the peripheric nerves existed chronic inflammatory alterations; it is to be remarked that no bacilli were found in the spinal cord. However, Chassiotis avers that he has found these specific micro-organisms, and thinks that anesthetic lepra is a disease not only of the peripheric nervous system, as is generally believed, but also of the central organs, especially of the spinal cord, an opinion which is also that of Duhring, of Constantinople, although the latter reasons only on theories.

The negative results obtained by us and other investigators in the central nervous system induced us to direct our attention principally to the peripheric nervous system. The few positive results in regard to the spinal cord may be considered, in our opinion, as accidental or secondary alterations.

In order to form a clearer idea of the cases of nervous leprosy which we are going to study, we shall briefly describe first the alterations in the skin itself, then the manner in which they are shared by the fine nervous ramifications, and, finally, by the nervous trunks. A large part of the modifications or transformations of which we shall speak we have had occasion to observe frequently; we shall take foundation, therefore, on our own studies and those of others.

In those cases in which the disease offers already its essential characteristics in the skin, the different layers of the latter are found altered simultaneously by proliferations or atrophies, riddled by bacilli and tissues of neoformation, so that it is impossible to conceive an idea of the progressive development of these formations. If we examine, however, a fragment of skin from an individual affected with incipient leprosy, we find few essential modifications, but already appear the bacilli around the glandulæ sudoriparæ and the pilous follicles.

Consequently it seems rational to consider the pores of these sudoriparous glandulæ as the door by which the affection enters. At

the beginning the bacilli exist on the perivascular lymphatic points; then they penetrate gradually in the capillary vessels of the blood, destroying them, establishing themselves in the walls and the endothelium, some of them progressing through the interfascicular tissue of the skin. In the endothelium of the vessels, as well as in the cells of the conjunctive tissue, we observe rich formations by mytosis, constituting the specific leprous granulations which present themselves now under the tuberculous form, now under the form of diffuse infiltrations of the skin, and others finally under a mixed form. And these infiltrations can extend over a great surface, grow outward and up to the papillary layer, and accompany below the subcutaneous tissue.

This cellular proliferation is so abundant that it makes atrophic by compression the epidermic formations, the glandulæ sudoriparæ, the sebaceous and pilous follicles, etc. On all these points the bacillus is found; however, the epidermis proper is not invaded by them. It is not our purpose here to follow step by step the development and the regressive consequences of these processes; it suffices to have indicated the manner of its diffuse propagation in the skin.

The delicate ramifications of the cutaneous nerves (we do not want here to refer to the subtile terminations of the sensitive nerves in the corpuscles of Pacini and Vater, or of Wagner and Meissner) are destroyed in the leper skin by the same process of alteration. If we examine divers fragments of altered skin in different stages of the disease, we obtain divers aspects, which combined together give an exact idea of the process of development: at once at the beginning the *cylinder-axis* disappears and is immediately followed by the destruction of the myelina.

In Schwann's vagina and in the perinervium the cells reproduce themselves in great abundance, and form a granular leprous tissue; then the whole nervous substance is completely destroyed, and in its stead is established the leprous tissue, which cannot be distinguished from the tissue around it, because this is also changed in leprous tissue. These are the modifications found in tuberculous lepra.

In the lepra called anesthetic or maculosa the modifications are the same in their chief points, differing scarcely in their intensity. Any time when on the skin of a leper there exists a macula, erythema, patch, etc., there is found around the glandulæ sudoriparæ and the sebaceous follicles the proliferation of small leprous cells, full of specific bacilli in the papillary layer; but in this form, besides not affecting all the component parts of the skin with the same intensity, the proliferation is not so abundant as in the tubercular form. As to the peripheric terminations of the nervous ramifications in this

variety also they always show leprous granulations. We are able to verify this fact in early stages of the disease, and in these cases the nerves just before—that is, in the subcutaneous or even superficial part of the muscular layer—remain healthy, so that in periods more advanced of the disease the nerve may be involved more extensively, starting from the periphery, and then either the alteration marches without interruption, or, after showing itself healthy in a certain extension, it shows itself again altered by infections started from other points. Following the nerve in its course, we find in every trunk, hardly altered, the ramifications, which direct themselves to the altered skin, where they present their principal modifications.

From these observations, we can very naturally draw the following conclusions: that there is no essential difference between tubercular and nervous lepra; in both it is the skin that is primarily infected, but in different degrees, after which the extreme nervous ramifications take the infection.

It remains still for us to mention other alterations of the skin met with in anesthetic leprosy and constituting the most common cases.

This has much interested the investigators.

In general, the parts in which these alterations are found are without pigment, glossy, lustrous, delicate, and the field of the microscope; all the layers and formations of the skin show signs of atrophy; no bacilli are found in the cuts made in those parts, and the fine nervous ramifications show themselves degenerated and wrinkled. This atrophic skin has in our opinion simply an indirect relation with the leprous alterations; it is the result of an alteration produced by the specific process of the lepra or any other process, inflammatory or otherwise, and manifesting itself in fibres of nervous trunks situated on points more or less distant from the manifestations with which we are now occupied. We must remember that these fibres possess vasomotor and trophic powers.

The modifications existing in the skin altered by lepra depend then on two influences: one, the irritative action of the infecting bacillus, which causes formation of pigment, hyperemias, proliferations, and formation of conjunctive tissue and cells of granulation; the other, the stopping of nervous influence, shown by atrophy. These two processes may develop simultaneously in the same subject on divers points, and thus produce the polymorphy of the skin-alterations, which we usually observe in lepra.

Let us now direct our attention to the modifications of the nervous trunk. All the nerves are not affected with the same frequency; on the contrary, lepra shows marked preference for some of them, for the cubitals, medians, radials, peroneals, posterior tibials, and facials.

The study of these leprous alterations in the nerves has been the labor of predilection of the investigators during these last decades; the principal subject of study was the cubital nerve, which is the one generally attacked. It was found that the nerve is not affected in its whole extent, but only in some parts, and especially in those most exposed to traumatism, for instance, the articulation of the elbow, between the condylus externus and the olecranus. The morbid affection extends a little above and a little below, reaching in the cubital nerve an extension of about six centimetres; in the other parts the nerve shows no special alteration, neither peripheric nor central, putting aside what we have already said as to the extreme ramifications. In the parts affected the nerve shows in its configurations divers aspects, which vary from small thickenings, fusiform or nodulous, to big swellings, diffused, simulating real tumors.

Passing the finger over the skin, the nerve is felt as if it were a thick string, and in its sections there appears a great change of color; the exterior, which was white, passes to a color more or less maroon, and even black. Examined under the microscope, the neurilemma shows itself much thickened, and in the interstitial substance of the nerve there is found a compact agglomeration of cells. Finally, the perineuritic and neuritic processes sketch themselves perfectly. Observing the details we can distinguish in every primitive nervous fibre a central zone and another peripheric; in the central zone we recognize the remnants of the destroyed cylinder-axis and the degenerate myelina, and even Schwann's vagina very often also destroyed. We observe here also the concentric formations, repeatedly described in these last years like the different layers around an onion, and which are considered by Langhans as endoneuritic neoformations. These are identical with the leprous granulation tissue, and contain bacilli in abundance. Marestang saw also in these central zones very distinct vacuoli occupied in the periphery by bacilli. Marestang attributes the formations of these vacuoli to a gliomatose degeneration.

The peripheric zone is formed by an abundance of conjunctive tissue, leprous and interstitial, which approaches the fibres and also the nervous trunk; there the bacilli exist in as much abundance as in the true leproma.

We must also mention that there are cases with neuritic granulations, in which, however, the swelling is not so pronounced, and in which the bacillus is not found; under all other points of view these nerves have the same aspect as the nerves altered by the leprous processes.

We have then anatomically verified in the large nervous trunks the existence of interstitial neuritis, simple and specific; in the peripheric extremities the progressive destruction of the delicate terminations

of the nerves, caused by the propagation of the skin-disease, either originally through the bacillus, or secondarily by the atrophy produced by the alteration of the nervous trunk, in its most central parts.

If these neurites, of ascendent and descendent form, involved the nerve in its whole extension, comprised between the two affected parts, it would be easy to understand the manner in which these alterations are produced; but between the periphery and the trunk there is a certain extension which is generally still healthy, or at least shows itself so to our present means of investigation. By the general course of lepra we can perhaps understand how, in these cases, the *bacillar infection* of a nerve in its periphery may affect the same nerve in a more central part without the intermediate part being involved, as is very often observed in the cubital nerve. It is possible that the infection is produced directly on the two points without one having anything to do with the other; besides, these facts can be perfectly well explained by metastasis.

The leper is frequently attacked with fever, which shows itself by its course to be a fever of infection; as to effects, it is generally associated with the appearance of new formations, and it disappears when these new formations have reached their complete development. This accident is generally accompanied by violent pains, especially in the traject of the nerves, which in cases of lepra are frequently attacked. When this accident is over, one may observe a greater thickness of the nerve, and soon after there appear anesthesia and the other symptoms of nervous infection.

Koebner and Thoma found the lepra bacilli in the blood, and consequently a metastatic affection of the nerves is nothing marvellous; however, one might object, Why can certain nerves be affected by metastasis and not the brain, the spinal cord, and other territories of the nervous system? At the present time it is difficult to answer; we can only, now, mention the same facts verified in the infection by lead, by the diphtheritic bacillus, etc.

How shall we explain the degeneration *not accompanied by the bacillus*, and the interstitial neuritis *not leprous* of the nervous trunk, when the propagation of the disease is not made through the nerve which seems to remain healthy? We are not yet able to explain in a satisfactory manner; but we are disposed to think that there happens in these cases, as in divers nervous affections, a functional perturbation or a toxical influence of the bacillus, as happens in other polyneurites. Besides, do not we know that in the polyneurites it is very common to observe alterations in the nervous system, appearing in points distant and irregularly situated without that it can appeal to the propagation through the nervous traject.

(TO BE CONTINUED.)

A CASE OF ELECTRIC SHOCK OF TWO THOUSAND VOLTS, WITH RECOVERY.

By John J. Gilbride, M.D.,

Resident Physician St. Agnes's Hospital, Philadelphia.

I am indebted to Dr. William J. Taylor for the privilege of reporting the following case:

On the morning of April 21, 1896, G. B., male, aged 27 years, was brought to St. Agnes's Hospital with the history of having come in contact with a telephone wire charged with electricity from an electric-light wire carrying 2000 volts.

He was walking on a tin roof, wet by the rain of the previous day, when he came in contact with the live wire, which was about five feet and a half from the roof. He was caught on the nose by the wire and the entire circuit passed through his body, rendering him unconscious, and when found was rolling around like a ball on the roof. The same current struck his father a short time before, killing him instantly.

On admission, which was less than twenty minutes after the accident occurred, he was unconscious, and in a state of cerebro-spinal convulsions, with legs and arms flexed, considerable jactitation, reflexes markedly increased, skin warm and dry, breathing accelerated, pulse 140 per minute and pupils normal. The temperature was not taken because of the violent movements.

He was given twenty grains of chloral by the mouth, the dose being repeated every ten minutes with but little effect until he had taken sixty grains, when he commenced to show signs of its action, the convulsions almost disappeared, and he rested more quietly. He was then given whiskey, one fluidounce, as a heart stimulant. His temperature was now 97.4° F. in the axilla, respiration 20, and pulse 100 per minute, full and strong. After an interval of twenty minutes he again showed considerable violence and had a number of convulsions. He was given twenty grains of chloral. After this he rested quietly and was in good condition, regaining consciousness about five hours later. On regaining consciousness he complained of being weak, of soreness and stiffness of the muscles, and of considerable headache. His mind was a complete blank, as he had not the slightest recollection of anything that had occurred for six hours previous to the accident. He slept for about three hours, on awakening feeling much improved. He did not vomit or have any

involuntary discharges, and was so much improved that he was taken home in the ambulance the same afternoon.

The only lesions on his body were a burn of the second and third degrees of the entire nose, where his face came in contact with the wire, and two abrasions of the scalp.

He was kept in bed for two days, and on April 26 had no bad symptoms, but slight deafness.

On the pathology and treatment of these cases very little is written. Hedley[1] states that death by the circulating currents of commerce occurs in one of two ways: (1) by actual lesions or destruction of tissues and (2) by arrest of respiration by asphyxia. In the former, death is actual, and nothing can restore animation, and in the latter death may be, and often is, only apparent, recovery still being possible, and even probable, by a timely resort to artificial respiration, and if, by movements of the arms, it is a failure, what is known as the "Laborde" method should be tried. This is the rhythmical traction on the tongue. He cites a case where 4500 volts accidentally passed through a man's body, and artificial respiration was not commenced for over half an hour after the accident, and the man recovered.

The cause of asphyxia is supposed to be due to the elevation of temperature brought on by the tetanic muscular contractions. Therefore, controlling the contractions would prevent any possibility of the failure of respirations and the indication for treatment would be to administer cerebro-spinal sedatives. Chloral was selected in the above case, on account of its promptness, and cerebro-spinal action. Some of the other anti-convulsants might have fulfilled the same indication, but, as the condition was one of intense excitement of the central nervous system, it required a drug powerful and permanent in its effects.

The anesthetics would be but temporary in action and bromides would have to be given in large doses, and the action would be slow.

Blindness in Scandinavia.

The *British Medical Journal* summarizes, in its issue of December 14, statistics, which have been collected by Widmark, regarding blindness in Scandinavia. These show that Denmark had in 1890, for every 10,000 inhabitants, only 5.3 blind, Sweden, 8.3, Norway, 12.8, Finland, 15.5. Compared to other European countries, Portugal and Russia stand highest, with 20 blind persons for every 10,000 inhabitants, and Holland lowest with only 4.5.

[1] Lancet, 1894.

MEMORANDA.

SCARLET FEVER NOTES.

(1) Physicians may carry the germs long distances, and become themselves foci of infection.

Three days after a professional visit to a child, 2½ years old, sick two days of scarlet fever, and living two miles from my office, my own child, aged 3 years, was stricken with the disease. Subsequently my two other children were affected. There was no other source of contagion.

(2) Immunization by blood-serum inoculation, as in diphtheria, is not permanent.

A boy, 7 years old, being attacked with scarlet fever, I took blood-serum from a blister on the chest of his brother, who had had the disease two years previously, and inoculated it in the arm of his brother and sister, who had not had the disease, to protect them. None of the family was isolated. Another brother not thus protected was stricken. The two inoculated ones escaped; but two years later when again exposed to the disease both took it.

(3) Very low temperature prevents development of the germs.

A child, 6 years old, whose brother was sick of scarlet fever, was taken one very cold day from New York to Brooklyn by the ferry. The thermometer registered three degrees below zero. That same night profuse scarlet eruption appeared, but only on the parts of the body well protected by the clothing. Those parts which had been freely exposed to the air—face, neck, hands, and legs to the knee—were not affected. At no period of the disease was there any eruption on them.

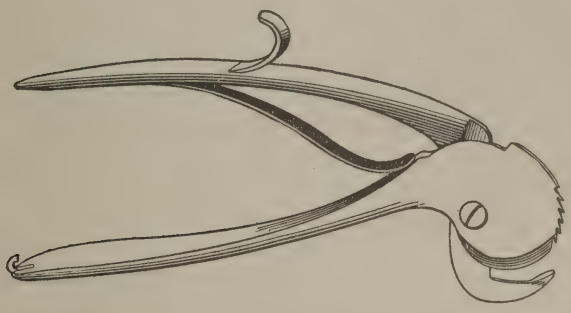
Albert S. Ashmead, M.D.

A PLASTER-OF-PARIS DRESSING SHEAR.

The accompanying cut represents one-third actual size of shear. The lower blade is short and small that it may readily pass between the dressing and underlying parts. Its cutting surface is three-quarters of an inch. The upper blade is one and a half inches on the cutting surface, which is of a circular form. The fulcrum, being

placed above the plane of the cutting surfaces, causes the upper blade to cut with a drawing movement, which makes it cut the heaviest dressing with ease.

The instrument is advanced into a heavy and close-fitting plaster dressing, and over bony prominences by raising the handles closed after cutting, when the heel of the lower blade raises the dressing and separates the cut edges, making ample room. The teeth are to prevent the upper blade from slipping or revolving in cut, and to act



as a fulcrum when the handles are raised, otherwise the shear would revolve in cut and the beak of the lower blade would press into the parts beneath. It not only facilitates the labor of the surgeon, but adds greatly to the comfort of the patient in the removal of a plaster-of-Paris dressing.

Howard Reed, Ph.G., M.D.
Assistant Surgeon to the Orthopedic Dispensary, University of Pennsylvania.

New Operations for the Cure of Uterine Flexions.

Nourse describes a new operation for the radical relief of uterine flexions. He splits the cervix transversely up to the angle of flexion, then straightens the uterus and sews the severed cervix together in the straightened position. The lip which corresponds to the convexity of the flexion then slightly overlaps the other at the os externum; but Nourse states that this projection disappears in a few months. The author believes this operation practicable for all cases, except those in which there is pus in the pelvis. He reports three cases of uncomplicated flexion in which the operation was successful. —*Boston Medical and Surgical Journal.*

ALUMNI NOTES.

Commencement Week.

Commencement week will be more than usually interesting this year, and probably none of the days will be more attractive to the members of classes that have graduated from Pennsylvania than Alumni Day, which is to be given over to the reunions of old classmates and the glorification of their *Alma Mater*. Alumni Day will occur on Wednesday, June 10. In the morning there will be a meeting of the General Alumni Society of the University of Pennsylvania, —the first since its organization. From the present outlook it would seem as if our graduates will be much surprised by the steady growth of this infant society and will take much pleasure in listening to an account of the good work that it has already accomplished for Old Penn. Following this meeting there will be in the library of Houston Hall a luncheon served without charge to all graduates or members of graduated classes. That this entertainment will be of more than ordinary interest is shown by the strenuous efforts that are being put forth by the committee representing the general society. In the first place, special committees of the following classes in all departments have been appointed, whose duty it will be to see that the members of each class attend in a body; 1893, 1881, 1876, 1871, 1866, 1861, and 1855. Of course, all other classes are urgently requested and are expected to attend, but the above-named are specified, as they represent the classes graduating every five years previous to 1876. Last year at least 400 sat down to the luncheon, and it is hoped that this year will see that number nearly doubled.

Appointments.

Dr. Judson Daland has been elected professor of diseases of the chest in the Philadelphia Polyclinic.

Dr. Robert S. McCombs, of the class of '68, has been appointed surgeon of the Union Traction Company of Philadelphia.

Dr. Charles A. L. Reed, of Cincinnati, has been selected by the European Committee on Organization of the International Periodical Congress of Gynecology and Obstetrics, as honorary president of the meeting of that body, to be held in the city of Geneva, Switzerland, the first week in September of this year.

Funds for the University.

Provost Harrison has received during the past month contributions amounting to $40,000. Of this amount $10,000 is to go to the dormitory fund and the other, $30,000, to the general fund for the needs of the University.

Summer School of Chemistry.

To teachers and to others interested in chemistry, the University of Pennsylvania will again offer this year, the following courses to extend from June 24 to August 5: general elementary chemistry, consisting of daily lectures with laboratory exercises; qualitative analysis—laboratory exercises with conversational lectures; volumetric and gravimetric quantitative analysis; organic chemistry—lectures and laboratory practice in the preparation of typical compounds with analysis; analysis of food stuffs.

The laboratories will be in charge of competent instructors, and will be open daily from 9 A.M. to 5 P.M. The fee for each course will be $25.00, payable on entering. An additional charge of $10.00 is made for material consumed by the student, and a deposit of $5.00 is required to cover breakage.

Erratum.

The physician-in-charge of the Easton (Pa.) Hospital is Dr. Henry D. Michler instead of Dr. Henry D. Miller, as printed on page 657 of the May issue of the Magazine.

Necrology.

Dr. Grayson Mallet-Prevost died in Philadelphia on May 1, 1896. He was the son of General Andrew Mallet-Prevost, and was born in Philadelphia in 1823. He received his medical degree from the University of Pennsylvania in 1844. Entering the army as a surgeon, he was stationed at West Point, but when the Mexican war broke out, he went to the front and served on the staff of General Wool. During the latter part of the campaign he was chief surgeon of one of the main divisions of the army. After the war he practised his profession in the city of Zacatecas, Mexico, and married Marianita Cosio, daughter of Severo Cosio, governor of the state of Zacatecas. In 1866, he returned to Philadelphia where he remained until 1878, when he left to resume his practice in Zacatecas. Dr. Prevost had been in failing health two or three months, and about three weeks ago he came from Mexico in order to have the advantage of greater medical skill. He was taken to the Presbyterian Hospital in this city in

order to undergo an operation, but he never rallied sufficiently from the strain of the journey to permit of its being performed.

Dr. Edgar H. Steer died in Atlantic City, N. J., on May 17, 1896. He was born in Maryland thirty-four years ago. He was graduated with the highest honor from the Medical Department of the University of Pennsylvania in 1884, and was subsequently elected resident physician in the Philadelphia Hospital. After a year's service in that institution he resigned to accept the practice of Dr. T. S. Bartram, in Philadelphia, which, however, he was obliged to relinquish about one year ago owing to ill health. Several weeks ago he went to Atlantic City with the hope of improving his health, but death came suddenly.

Semi-Centennial of the American Medical Association.

At a meeting of the Philadelphia County Medical Society held April 15, a committee, consisting of Drs. John B. Roberts, James C. Wilson, and William M. Welch, was appointed to urge the members of the American Medical Association to favor the holding of a semi-centennial celebration of its organization. The Society also instructed its delegates to invite the Association to hold the meeting of 1897, which will be the semi-centennial, in the city of Philadelphia.

Treatment of Certain Obstinate Headaches.

M. Galliard calls attention to a form of headache which is distinguished from migraine and syphilitic cephalalgia by its continuity, absence of nausea and vertigo, and its cessation at night. It is generally limited to the forehead, rarely to the vertex, occiput, or temples. It generally survives any coincident disorder of the primæ viæ that may exist, and is distinct from the persistent headache of neurasthenia, which, however, it resembles in its resistance to ordinary remedies. M. Galliard claims to have successfully treated a certain number of these cases by the exhibition before breakfast of 0.10 gramme (1¾ grains) of calomel for six consecutive days. On the third or fourth day diarrhea sets in with some colicky pains. The gums are carefully watched. The headache generally disappears; but, should it persist, a similar six days' course is resumed after the lapse of a few weeks.—*Universal Medical Journal.*

EDITORIAL.

SPINAL PARACENTESIS.

The knowledge of the fact that a free communication exists between the subarachnoid spaces of the brain and spinal cord through the foramen of Magendie led Quincke, of Kiel, in 1891, to puncture the spinal membranes in order to withdraw a portion of the cerebro-spinal fluid in cases of hydrocephalus, as a substitute for tapping the lateral ventricles. Later, he employed the procedure in cases of meningitis of whatever form, with the view of relieving intracranial pressure. At the time of his first report, in 1891, Quincke had performed spinal paracentesis twenty-one times on ten patients. Two years later, Ziemssen reported a number of cases so treated. In some instances he withdrew as much as ninety cubic centimetres of fluid without unfavorable results. As might be expected, from the nature of the diseases that give rise to the conditions in which this measure would be applicable, Quincke's operation has not proved to be a therapeutic agent of great value. It is said, however, to have afforded considerable relief in some cases, particularly in those suffering from acute serous meningitis.

The *Boston Medical and Surgical Journal*, January 23 and 30, 1896, contains an extended review of this subject, and Jacoby has added a valuable contribution to this subject (*New York Medical Journal*, December 28, 1895, and January 4, 1896), in which he describes thirty-five cases, embracing a variety of conditions subjected to spinal puncture. He notes that in one case the headache accompanying a brain-tumor was relieved, and the pulse and general condition was improved in cases of meningitis. Goldschisder reports the case of a child suffering from symptoms similar to those of meningitis that was cured after withdrawing eighty ounces of cerebro-spinal fluid. Freyhan records the case of a man, 20 years of age, who presented the characteristic symptoms of tubercular meningitis, going on to paralysis and coma. Two punctures were made at different times. The fluid in each instance showed the presence of tubercle bacilli. Improvement began after the first puncture, convalescence being established. Fürbringer records the case of a patient with right hemiparesis, headache, dizziness, and double-choked disks apparently cured by

spinal puncture. Gaibissi reports a case of tubercular meningitis in which the headache lessened, the subcultures ceased, and the pupils became more active to light.

It must be admitted in the cases that recovered and in those that died, in which no autopsy was made, that the diagnosis will remain uncertain. On the other hand, we are irresistibly led to be less dogmatic in pronouncing these conditions incurable.

Lichtheim, Fürbringer, Jacoby, and others have employed spinal paracentesis for the purpose of diagnosis, especially between the serous, tubercular, and purulent forms of meningitis. It is also a useful means of determining the degree of pressure existing in the cerebro-spinal cavities and of detecting the presence of hemorrhage the various forms of micro-organisms, and other pathological constituents of the fluid. The force with which the fluid flows from the needle will give an approximate idea of the amount of pressure that exists, but as Quincke considers this a very important point to determine accurately, he prefers to connect the needle with a manometer. Under the normal pressure the fluid flows from the needle drop by drop, while under abnormal tension it escapes in a stream with more or less force.

The presence of blood in the fluid withdrawn, if not due to injury of a vein in introducing the needle has led to the detection of ventricular hemorrhage that otherwise would have been very difficult of diagnosis. Meningeal hemorrhage may also be thus detected.

Lichtheim observed micro-organisms in the fluid withdrawn in three cases of purulent meningitis and in four cases of tubercular meningitis. Gaibissi found streptocci and Fränkel diplocci. Fürbinger's statistics show that tubercle bacilli were found in twenty-seven of thirty-seven cases of tubercular meningitis (73 per cent.), the result having been confirmed by autopsy. In Gaibissi's cases referred to above, twenty-five cubic centimetres of the cerebro-spinal fluid injected into a guinea-pig caused its death from tuberculosis.

Regarding the significance of other abnormal constituents of the cerebro-spinal fluid, but little is known. Normally, albumin is said to be absent. Quincke states that the presence of a comparatively large proportion of albumin indicates a recent inflammation, and Lichtheim found that the fluid contained less albumin in cases of brain tumor than in those of abscess of the brain and of meningitis. More than 1 per cent. of albumin would point to inflammation rather than tumor. Lichtheim found sugar in all cases of brain-tumor examined, but only rarely in tubercular meningitis. It is said, however, that the normal fluid contains a substance that reduces Fehling's solution.

The needle employed for spinal paracentesis should be at least eight centimetres in length, and should have a calibre large enough to permit of the ready exit of the fluid if it be purulent. The cord terminates at about the first lumbar vertebra, below which are the branches of the cauda equina. The aspiration is made between the third and fourth or fourth and fifth lumbar vertebræ, about five millimetres from the median line, to avoid the resisting interspinous ligament. The patient should be in the sitting posture, with the trunk inclined forward in order to obtain as much separation of the vertebræ as possible. The most rigid antiseptic precautions having been carried out, the needle is gradually introduced until the cerebro-spinal fluid begins to flow, the distance being from two to eight centimetres, according to the age and build of the patient. The fluid should be allowed to flow from its own pressure and not by aspiration, as by the latter, agonizing headache has been produced. The quantity to be withdrawn depends upon the condition present and the object to be secured. Caillé gives the following directions for tapping the spinal canal: After locating the third and fourth lumbar vertebræ, place the middle finger of the left hand on the spinous process of the third and the index-finger on the spinous process of the fourth lumbar vertebræ, pressing firmly upon the bone. Next, mark with the nail of the right index-finger midway between the two fixed points, and puncture directly in the middle line with a large-sized hypodermatic needle, attached to its syringe, which is to be used as a handle only, and not for the purpose of aspirating. No undue force should be employed, as the needle readily enters the spinal canal when the syringe is to be unscrewed and the fluid allowed to flow into a sterile bottle. After performing this operation, Ziemssen has introduced a weak solution of iodine, but the result is not stated.

The puncture itself is without danger if performed antiseptically, but the possibility of spreading a cerebral meningitis to the spinal membranes must be borne in mind.

Dr. Jacoby summarizes the present status of lumbar puncture as follows: Cerebro-spinal fluid can be removed easily from the subarachnoid sac of the spinal cord and from the cavities of the brain.

Therapeutically, it is only of direct value as a palliative through the reduction of increased pressure; it may, perhaps, prove of more service indirectly as the first step to local treatment of the cord and brain.

Diagnostically, it possesses great clinical advantages in the detection of the various inflammatory affections of the cerebral membranes and in the recognition of intraventricular hemorrhage as well as of hemorrhage within the spinal canal.

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.,

ASSISTED BY

M. HOWARD FUSSELL, M.D., AND A. O. J. KELLY, M.D.

The Nature and Treatment of Exophthalmic Goitre.

Starr (*Medical News*, April 18, 1896) calls attention to the theory accounting for this disease first proposed by Mobius, namely, that exophthalmic goitre is due to hyperactivity of the thyroid gland.

The symptoms of myxedema and exophthalmic goitre are thus contrasted.

Myxedema.	*Exophthalmic Goitre.*
Atrophy of thyroid or its destruction by goitre.	Swelling of thyroid.
Marked tendency to abnormal heaviness of the eyes.	Eyes abnormally wide open.
Slow pulse which is small and high tension.	Rapid pulse which is full and large.
Skin thickened; hair falls out; nails thickened and rigid.	Skin soft and fine; hair stimulated; nails grow rapidly.
Temperature depressed.	Temperature often raised.
Dull condition of mind.	Mentally alert.

As myxedema is due to an absence of thyroid secretion, exophthalmic goitre may be reasonably ascribed to an excess of this secretion, and this hypothesis receives confirmation from the symptoms of poisoning by thyroid extract,—which are: (1) Rise of temperature; (2) increased rapidity of pulse; (3) burning sensation and flushing of skin; (4) rapid emaciation; (5) mental excitement; (6) exophthalmus.

If this theory be true, the treatment of exophthalmic goitre by thyroid extract is the worst possible that can be employed, for it is administering a substance of which there is already too much in the system.

He concludes:

(1) It seems probable that the symptoms of exophthalmic goitre are due to an excess of thyroid juice of either a normal or abnormal character circulating in the blood and acting directly on the vasomotor nervous systems and upon the muscles

(2) The best treatment of the disease is either to arrest the secretion of the gland or remove the gland from the body.

He cautions, however, against indiscriminate removal of the gland, because of its fatality and because the disease is sometimes cured by other means.

The Relation of the Xeros Bacillus in the Diagnosis of Diphtheria.

Shanz (*Berliner klinische Wochenschrift*, March 23, 1896) states that the Xeros bacillus which is found so frequently in the conjunctival sac is morphologically precisely similar to Löffler's bacillus. Its cultures appear the same exactly. It differs from the pseudo-bacillus in several particulars just as does Löffler's bacillus.

He found that a guinea-pig inoculated with a pure culture of the Xeros bacillus was sick for three days, but fully recovered by the fourth, but this is no greater difference than the authorities attribute to the true diphtheria bacillus with different grades of virulence, and believes that the Xeros bacillus is identical with the diphtheria bacillus that has lost its virulence.

Two Cases of Purpura.

Claude (*Des Maladies de l'Enfance*, March, 1896) reports the following cases:

Case I.—Child, 13 months old, observed with a broncho-pneumonia of long standing. During an acute attack purpuric spots appeared which became necrotic at the centre. Virulent pneumococci were found in the blood. The patient died.

Case II.—A boy of 14 years ate indigestible food, was seized with malaria, digestive troubles, and purpuric spots all over body with a tendency to necrosis. Blood contained no bacteria. The recovery was complete after a relapse of the cutaneous purpura. These two cases serve to illustrate two classes of purpura, the one with an infectious origin, the other toxic. They also prove that purpura is not a uniform disease, and that there is no micro organism peculiar to it.

"Diaphragm Phenomenon."

Moritz Litten (*New York Medical Record*, December 28, 1895) again calls attention to observations published in *Deutsche medicinische Wochenschrift* for 1892, No. 13, on visible movements of the diaphragm. The writer claims that if the chest and abdomen of a patient be stripped, the patient laid on his back with his head slightly raised, and facing a bright light, the observer standing with his back to the light, and the patient made to take a deep inspiration, a distinct shadow can be observed at an acute angle with the ribs and descending with the inspiration. When the patient expires the same shadow can be seen to ascend to its original point. The excursion of this shadow is on an average of two and a half inches. He claims that it can be seen by any one who makes the trial, and is of great value in determining the expansion of the lungs. It is of especial value in deciding whether one lung descends more than the other.

The reviewer has so far been unable to verify these observations.

Antiseptics in the Treatment of Infantile Diarrhea.

Fenwick (*British Medical Journal*, December 21, 1895) divides the antiseptics used in diarrhea into two groups, the soluble and insoluble. The members of the insoluble group remain unchanged in the upper bowel and stomach and only become changed in the intestine and exert their influence there.

He has used the antiseptic treatment in over 500 cases of digestive disorders of children, and has not once had to resort to astringent drugs or to opium. On the other hand, cases in which these drugs have been used without effect, have readily yielded to the antiseptic treatment.

It is in cases of chronic diarrhea due to fermentation where the systematic

treatment by antiseptic drugs is of the greatest value. For this latter condition he uses resorcin in the dose of three grains every four hours for infants only a few weeks old.

Research on Antiphthisin (Klebs).

Baldwin (*New York Medical Record*, December 21, 1895) has made an experimental research in the Saranac Laboratory for the study of tuberculosis on the above substance. He prepared it as directed by Klebs, and then tested its efficiency upon culture tubes and animals, and arrived at the following conclusions:

(1) Antiphthisin prepared according to Klebs's published method, is practically highly diluted tuberculin, and its physiological effects, when given in sufficient doses, is the same as tuberculin.

(2) Antiphthisin possesses, under the conditions stated above, no germicidal power on the tubercle bacillus, which can be demonstrated *in vitreo*.

(3) When applied to animals, neither tuberculocidin nor antiphthisin had any curative influence over the course of experimental tuberculosis in the guinea-pig.

Treatment of Diphtheria.

Schwartz (*Wiener klinische Wochenschrift*, No. 43, 1895) has used the following preparation by insufflation into the pharynx for several years:

℞ Sozoiodol of soda, 9;
Sugar, 1.

A small amount of this powder is blown into the pharynx every four hours. A simple roll of paper is used for an insufflator, the paper being afterwards burned. Internally he uses either one-half per cent. to three-fourths per cent. solution of chloride of calcium, or the extract of nux vomica.

In children under 2 years the following mixture is used:

℞ Sozoiodol of soda, 3;
Flour of sulphur, 6;
Sugar, 1.

Experimentally the sozoiodolic acid is extremely deadly to the diphtheria bacillus, sozoiodol of mercury being efficient in the proportions of 1 to 10,000.

The treatment is said to be entirely harmless, and is urged to be used in conjunction with the serum treatment.

Enormous Heart Hypertrophy.

Osler (*Archives of Pediatrics*, January, 1896) records two cases which were first diagnosed as primary disease of the mitral valves, in which the symptoms were due to adherent pericardium and consequent proliferative peritonitis with perisplenitis and perihepatitis.

Case II, which is reported somewhat in detail, was a girl who was admitted to hospital with orthopnea, anasarca, cyanosis, and extreme ascites. She was at once tapped and three quarts of liquid removed. There was enormous hypertrophy of the heart, no thrill, and a loud-blowing systolic murmur transmitted to the axilla and to the back. The case was at first regarded as one of mitral regurgitation.

There was marked cyanosis of hands and feet which persisted to the end. The case was under observation for almost three years, and the abdomen was tapped during that period 121 times.

Some time before death fibroid nodules were observed about the elbows, knuckles, and wrist. A peritoneal friction also developed, and the true condition of proliferative peritonitis was suspected.

At the autopsy the peritoneum was thickened and covered by fibrous nodules. There was marked adhesion between the spleen and liver with the surrounding tissues. The heart was enormous, measuring six inches from tip of appendix to vena cava. All the cavities were greatly enlarged. The pericardium was adherent. The *valves* were normal.

The Early Diagnosis of Human Tuberculosis by Small Doses of Tuberculin.

Grasset and Vedel (*La Semaine Médicale*, February 26, 1896). They made twenty-five injections in fourteen individuals. They used dilutions of 1 to 5000 and 1 to 2000. Of this they used two to three-tenths of a milligramme for the first injections, and one-half a milligramme for the subsequent injections. Observations of the temperature were first made for a few days and the injections then made with all due care. They have never had any bad results.

The conclusions arrived at are the complete freedom of danger in such injections, in no case was the reaction especially inconvenient. A negative result from these injections in the presence of *undoubted tubercular* lesions can be accounted for either by the lesion being healed or the amount of poison in the body being so great that the minimum doses do not excite a reaction.

The Significance of Hydrochloric Acid in the Stomach.

Schiele (*St. Petersburger medicinische Wochenschrift*, No. 19, 1895), after a careful review of the literature of the subject and a number of experiments, comes to the following conclusions:

(1) Free hydrochloric acid is worthless in the process of digestion. It appears after the stomach has fulfilled its functions.

(2) The union of the hydrochloric acid with albumin and the formations of a serum albumin is a necessity for the action of pepsin upon albumin.

(3) The peptonization of albumin is a secondary function of the stomach.

Syphilis and Locomotor Ataxia.

Erb (*Berliner klinische Wochenschrift*, No. 11, 1896) makes a statistical report regarding the etiological bearing of syphilis to locomotor ataxia. He excludes women and persons of the lower classes, and reports 200 cases of tabes affecting men of the upper class, of whom 185—92½ per cent.—had a history of previous syphilitic infection; 61½ per cent. had positive secondary symptoms; 31 per cent. chancre without apparent secondary manifestations. Of the fifteen not infected, eleven had suspicious histories: repeated attacks of gonorrhea, strictures, buboes, miscarriage of wife, leukoplakia, syphilis of the father, etc. Of 200, only four were "absolutely now syphilitic," if one can so speak. Adding these 200 to a series of 500 previously reported, his statistics are, 90.35 per cent. of 700 cases of locomotor ataxia with syphilitic history, 9.65 per cent. without such history.

Albumosuria.

Harris (*American Journal of the Medical Sciences*, May, 1896), by a method for the details of which we refer to the original, has made many hundred examinations of urine in a great variety of diseases, and has found products corresponding to the class albumose or proteose in all kinds of suppurative conditions, acute and chronic such as pelvic abscesses, appendicular abscesses. peritonitis, suppurative lymphadenitis, subcutaneous suppuration, osteomyelitis, etc., and in the following infective diseases which he had an opportunity to examine : acute croupous pneumonia, la grippe, phthisis pulmonalis, diphtheria, typhoid fever, syphilis (one case secondary stage), and one case of septicemia of unknown origin. By growing micro-organisms on hydrocele fluid free from albumose and peptone, and subsequently analyzing the contents of the tubes in which a growth had occurred, albumose was found in all without exception. As no albumose was found in control tubes, nor in tubes in which no growth had occurred, he of necessity concludes that the albumose was produced directly by the growth of the micro-organisms. The albumose is not an excretion of the micro-organisms, but is produced by the digestive action of the organisms upon the albuminoids (serum-albumin, globulins, fibrinogen, etc.) present in the fluid. The origin of the albumoses in the urine is thus explained: micro organisms invading the body develop in the rich albuminous fluids and tissues. In order to be able to appropriate the albumins to their own growth they digest them, thus producing various albumoses. Here, as in the higher forms of life, we find much larger quantities digested than are assimilated. The albumoses being very diffusible, as soon as formed the excess is readily taken up by the blood, and eliminated by the kidneys, thus appearing in the urine. The digestive activity of the various different organisms varies considerably. At one time we find large quantities of albumose in the urine, again only the slightest trace. The amount of albumose present in the urine in any particular infection is to a certain extent an indication of the activity and severity of the disease. He has many times correctly diagnosticated suppuration in conditions which were very doubtful and uncertain by the detection of albumose in the urine.

Albumosuria may be present in any condition or disease due to the action of micro-organisms within the body, and is thus simply indicative of an infective condition. A true peptone is rarely, if ever, found in the urine, the term peptonuria should be substituted by the term albumosuria.

Arthritis Deformans in Childhood.

Osler (*Montreal Medical Journal*, April, 1896) reports a typical case of arthritis deformans in a boy, aged 7 years. The child was well until he was about 3½ years of age, when his ankles began to swell. He had not had scarlet fever nor rheumatism. From the onset to the time of observation, the swelling of the joints had been progressive. The head was held to the left and the chin could not be moved in the middle line. The neck was completely fixed and moved with the head and trunk. He could neither nod his head nor rotate it from side to side. From behind it was seen that there was much thickening about the spines and lateral processes, and the cervical vertebræ presented a solid mass. The temporo-maxillary joints were not affected. The left elbow-joint was uniformly enlarged and the tissues about it much thickened; the arm was semiflexed and could not be fully extended. The head of the radius seemed involved, and the movements of pronation and supination were very limited.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

GWILYM G. DAVIS, M.D., M.R.C.S., AND ELLWOOD R. KIRBY, M.D.

Oxycyanide of Mercury as an Antiseptic.

Monod and Macaigne (*Revue de Chirurgie*, 1895, p. 898) give the results of their investigations of oxycyanide of mercury in reference to its use as an antiseptic agent in surgery. They state that in the strength of 5 : 1000 it acts as efficiently as 1 : 1000 bichloride-of-mercury solution in (1) hindering the development of cultures; (2) in killing developed cultures; (3) in sterilizing infected bodies. While no case of poisoning by its use has been observed by them they recommend that it be not used as an injection when the liquid is apt to remain in a cavity. Its advantages are summed up as follows: In solutions of 5 : 1000 it has shown itself in the experience of the laboratory to be as efficacious an antiseptic, if not more so, as the bichloride.

Without possessing any more objectionable qualities than does the bichloride, it has, in addition, the advantage of attacking neither the hands of the surgeon nor the instruments. The oxycyanide of mercury may therefore be substituted for the bichloride in surgical practice.

Excision of the Tongue.

J. O'Conor (*New York Medical Journal*, April 18, 1896) describes his method of excising the tongue for cancerous disease. The tongue is grasped with a pair of forceps—which are preferable to a thread – and drawn forward and upward so that the frenum is made tense and the floor of the mouth exposed. With a pair of blunt-pointed scissors the frenum is divided downward and backward, then the mucous membrane, and, if the cancer is situated far back, some fibres of the genio-hyoglossi must be severed, also the attachments to the anterior pillars of the fauces. The tongue can now be drawn well outside the mouth. He agrees with Whitehead that it is unnecessary to bother about the small amount of hemorrhage resulting from the above procedure. A transverse incision is made with a sharp knife, if possible, an inch posterior to the cancer. This should not be so deep as to cut the lingual arteries and does not need the application of torsion forceps. The tongue is now seized with a large double-handled forceps, the blades of which pass across the tongue from one side to the other. The upper blade rests in the cut. The forceps is tightly locked and all bleeding stops. A lateral cut with angular scissors is next made behind the forceps on each side to the extent of a quarter the diameter of the tongue. An aneurism-needle with a strong double silk ligature is passed exactly in the median line behind and quite close to the forceps; the silk loop is grasped and divided, and the needle withdrawn. The ligatures are sunk into the tissue by sawing movements and tied one on each side, the forceps being then removed. The tongue is cut away and any superfluous tissue snipped off with scissors. This operation takes about ten minutes to perform. The advantages claimed for the method are, (*a*) the portion of the tongue posterior to the cancer is securely fixed and cannot slip back; (*b*) forward traction is secured, thus the opera-

tive field is kept easily in hand and well in view; (*c*) no respiratory or hemorrhagic difficulty takes place; (*d*) the fixed handles of the forceps serve as self-retaining mouth-retractors.

The After-Treatment of Gastrostomy Cases.

Golding-Bird (*British Medical Journal*, January 4, 1896), in order to avoid leakage of the gastric juice through the fistula established by gastrostomy devised the following plan: The stomach was attached to the abdominal wall and then four days later a small opening was made into it to admit a No. 10 catheter. This opening was dilated with tents until a short piece of drainage-tube, the thickness of the forefinger, could be introduced and tied *in situ*. The stomach walls—from mere physical reasons—contracted firmly around the tube, and from the time of its introduction there was no leakage. The tube only just projects into the stomach and about one inch externally. It is closed by a cork except at feeding time.

Rhinoplasty.

Jonnesco (*Revue de Chirurgie*, 1895, p. 902) reports the case of a young man affected with diffuse hypertrophic acne of the nose which had resisted multiple scarifications. He removed the affected parts and did a total rhinoplasty by the Italian method. The flap was taken from the anterior portion of the arm, the pedicle being cut on the seventh day. The result obtained was excellent and the author thought that this should be the method of choice in these affections. It is superior to simple decortication, which leaves considerable deformity, and to other methods which leave disfiguring scars on the face.

Resection of Meckel's Ganglion for Neuralgia of the Face.

Guinard (*Revue de Chirurgie*, 1895, p. 903) advises that when a neuralgia of the face has commenced with the infraorbital nerve one should resect that nerve together with Meckel's ganglion, and this even if the neuralgia later has affected the other branches of the trifacial. The removal of the Gasserian ganglion should never be practised as a primary step, no matter what the extent of the painful territory is. One should not have recourse to it until after having tried the extracranial removal of the branches of the trifacial, operations much less serious and easier performed. The resection of the infraorbital nerve and ganglion of Meckel may result in the cure of painful areas beyond the district supplied by the nerve operated on.

Suprapubic Cystotomy.

Jonnesco (*Revue de Chirurgie*, p. 931), from an experience of six cases, five for calculus and one for a stubborn hematuria of unknown cause, draws the following conclusions:

(1) Suprapubic cystotomy is an easy operation to do; he has never wounded the peritoneum; the use of the Peterson bag is unnecessary.

(2) Suture of the bladder is always indicated, if it is not profoundly altered and the urine purulent. Even if total union of the vesical wound is not obtained, there remains a small vesical opening instead of the large wound necessary to withdraw a calculus or explore the bladder.

(3) Vesical fistulæ close with great rapidity.

(4) The overflow of the urine into the space of Retzius is of no gravity and yields to simple lavage and drainage.

(5) The suprapubic operation for stone is preferable to the perineal, even in infants of the earliest age.

(6) The longitudinal incision is the best. The transverse cut of Trendelenburg is bad on account of the difficulty of a perfect approximation of the abdominal wound.

(7) Suprapubic cystotomy is indicated in rebellious hematurias without appreciable cause (renal hematophilia), they cease immediately after operation.

Subcutaneous Wiring of the Patella.

Barker (*British Medical Journal*, April 18, 1896) describes his method of operating for fracture of the patella. The ligature used is silver wire instead of silk. The operation is to be done at once on the entrance of the patient to the hospital, usually within twelve hours of the fracture. The method is not adapted to old cases, but only to recent ones. No splint is used, simply the dressings and massage and slight passive motion made immediately following the operation. He operates as follows: The field of operation is made aseptic and the lower fragment steadied between the operator's left finger and thumb while a narrow-bladed knife is thrust exactly through the middle of the upper attachment of the patellar ligament, with its edge upward cutting on the bone. When the blade has entered the joint it is withdrawn, still cutting on the lower edge of the lower fragment, and enlarging the skin wound upward to the extent of two-thirds of an inch. Through this opening a long stout needle is thrust into the joint behind both fragments and made to pierce the tendon of the quadriceps close to the upper edge of the upper fragment, exactly in the middle line. A knife is then entered along-side of the needle and a cut made down to the bone. A stout silver wire, the size of a No. 1 English catheter, is then threaded in the needle and withdrawn. The needle is unthreaded and passed from the lower to the upper opening between the skin and upper surface of the fragments. It is then threaded with the wire and withdrawn. The two ends of the wire emerging from the lower opening are then wrapped around a couple of rods to secure a firm hold, and crossed, drawn tight, and twisted three times. Before twisting, the blood should be squeezed out of the joint. The whole operation should not take more than five minutes. By this method a firm limb is said to be obtained with good flexion and extension and apparently bony union. In cutting off the wires, ends half an inch long should be left, which are to be passed back into the opening and spread out in the soft parts.

The broken ends of the bone should be well rubbed together before operating, so as to clear the separated parts of all clots and fibrous tissue.

Treatment of Tympanites by Posture.

Sweetnam (*Annals of Surgery*, March, 1896) suggests elevation of the patient's hips to relieve the tympanites so often following abdominal operations. In one case the patient was placed in a knee-chest position thirty hours after an operation of intestinal anastomosis, the drainage-tube being still in the wound. Relief occurred in five minutes. The method is not recommended for severe cases of general peritonitis. While the knee-chest position may answer best in cases of extreme distention, the placing of the patient on the side, with elevation of the foot of the bed, will commonly secure relief in cases of moderate distention. The

insertion of a rectal tube while the patient's hips are elevated will also sometimes be of service. Cases of extreme and long-continued distention without the evidence of peritonitis with plastic exudation would seem to be the least favorable for treatment by means of puncture, which under the very best conditions must always remain somewhat hazardous.

A Case of Temporo-Maxillary Actinomycosis.

Poncet (*Lyon Médical*, Tome LXXX, p. 519) gives the history of a man, aged 38 years, who, while apparently well, felt a sharp pain just behind the jaw below the ear. The teeth were healthy. Two days later the tumefaction of the parotid region was considerable and accompanied by marked trismus. The teeth were so nearly in contact that he had difficulty in feeding himself. Six or seven days later, at the angle of the jaw, a soft spot was felt, which on incision gave vent to a sero-sanguinolent liquid and a little pus. The acute symptoms subsided, but left a fistula. This was curetted and drained and the patient given internally fifteen grains of iodide of potassium daily and pencils made of the same inserted in the wound. In a little over three weeks the sinus had closed, and the patient left the hospital apparently cured. Six days later, however, he again appeared with a recurrence of the trismus and tumefaction. A large opening was made, the masseter found to be invaded, and fragments of it which were removed were found to contain the actinomycotic fungus. The subsequent history of the case is not given.

Treatment of Congenital Luxation of the Hip.

Calot (*Revue de Chirurgie*, 1895, p. 953), in discussing the treatment of congenital luxations of the hip, says there is no remedy outside of operation. In children of less than three years, good results without operation, although sometimes obtainable, are so rare that one may truthfully say that there is no cure except by operative means. The reasons why the operation has not been done in France are, first, the mortality. Kermisson gave two deaths in seven cases, and later it was given as three deaths in twenty-four cases.

The author operated on the hip nine times for dislocations, five for congenital and four for luxations following coxalgia. All his cases recovered. Another reason alleged is that the orthopedic results of the operation are mediocre, that the limping is not diminished. The author says he has had no relapses, and claims they can always be avoided except (1) when the head of the femur is too much atrophied or the neck is absent; (2) when the head is located on a plane much anterior to the femoral diaphysis. In the first case the head is too imperfectly held in the cavity to remain, and in the second it is impossible to replace the head in the cotyloid cavity without great internal rotation. These two kinds of cases do not amount to over 4 or 5 per cent. The anterior incision between the middle gluteal muscle and tensor fasciæ lata is advised, and not the classic one of Langenbeck or of Hoffa. The children walk in six to ten months perfectly or almost so.

Drainage through the Rectum of Pelvic Abscesses due to Appendicitis.

Allis (*Annals of Surgery*, March, 1896) found in three cases of appendicitis a tumor pressing down upon the rectum and bladder within easy reach of the finger. The treatment of the first and second consisted in the evacuation of the abscess without care to subsequent drainage or irrigation; in the third case there was a

tendency of the opening to close, and a drainage-tube was introduced. The first two closed promptly, and the third in six weeks, and a year and a half later was still perfectly well. Before making the incision the bladder should be explored, and, if necessary, emptied. In a female, one finger may be passed into the vagina and the other into the rectum, and the point determined upon for puncture. The puncture may be made by a grooved director or a blunt-pointed instrument, and subsequently enlarged with the bistoury. This procedure will remove the danger of rupture of the circumscribed abscess,—a danger that cannot be over-estimated, a condition that cannot be postponed and leave the removal of the appendix to a remoter and safer period. Attention is called to a symptom of pelvic abscess,—viz., a firmly-contracted and resisting sphincter ani. In some instances the constriction is so tight that the termination of the gut projects outward like a nipple, or like the neck of the uterus.

THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D., AND ARTHUR A. STEVENS, M.D.

The Specific Immunity—Reaction of Typhoid Bacilli and the Serum-Therapy of that Disease.

Pfeiffer and Kolle (*Zeitschrift für Hygiene und Infectionskrankheiten*, February 21, 1896), after a series of experiments with the serum of patients convalescent from typhoid, announce results that show that besides antitoxines there may be other therapeutic principles in the serum of the immune, the isolation and concentration of which may greatly broaden the field of serum-therapy.

(1) In the serum of convalescents from typhoid there are substances of which very small amounts have a bactericidal and solvent action on typhoid bacilli in the bodies of guinea-pigs. This bactericidal effect is not explicable on the ground that the serum contains preformed bactericidal substances, but rather that it arouses in the animal organism a reaction that changes the inactive substances in the serum into specific bactericides.

(2) Antitoxic substances in the true sense cannot be demonstrated in the blood-serum of typhoid convalescents.

(3) Normal serum has a distinct action on typhoid bacilli in the peritoneal cavity of guinea-pigs, but there is a quantitative and qualitative difference between it and that from those who have had typhoid. Quantitative for 20 to 100 times the dose of normal serum is needed to produce the same effect as typhoid serum. Qualitative because normal serum has not the specific action on typhoid bacilli that the other has.

(4) Typhoid serum has this specific action on typhoid bacilli very distinctly, and does not act upon bacilli kindred to the typhoid. It could be used to differentiate them from other species, and its effect would show whether in a suspected case after recovery a disease had been typhoid or not.

(5) The evidence for the specific bactericidal action of typhoid serum forms another proof that the typhoid bacillus is the only etiological factor concerned with the disease.

(6) In the serum of goats immunized with ascending doses of living or dead typhoid bacilli, the same bactericidal substances occur, but thus far not enough of them have been produced in the blood to make it of therapeutic value in typhoid.

(7) Antitoxines in the true sense are not demonstrable in this immunized goat serum any more than in human typhoid serum. [Translated by James J. Walsh, M.D.]

Antitoxine and Toxine.

Brieger and Boer (*Zeitschrift für Hygiene und Infectionskrankheiten*, Zweites Heft, February 21, 1896), working with antitoxine with a view to finding a chemical combination for therapeutic use of the antitoxic elements that will be free from the inactive substances that now accompany it, found that a mixture of serum with chlorate of potash and common salt, exposed for eighteen to twenty hours to a temperature of 30° to 37° C., gave a precipitate which *quantitatively* contained the antitoxine. From hour to hour up to the eighteenth to the twentieth tests showed that more and more of the active elements were precipitated until a maximum was reached.

The weight of the dried precipitate thus obtained was constantly four-tenths gramme from ten cubic centimetres of diphtheria serum.

The milk of immunized animals can be concentrated by similar means. From a litre of the milk of a goat that had been immunized from tetanus, and that had an immunity value of 30,000, one gramme of a very soluble powder was obtained that had the full immunity value of the original.

This same method was tried in order to obtain the toxine for scientific study, but failed. Certain of the zinc salts, however, it was found, would bring about the concentration of the toxic elements, and would also give similar concentrations of the antitoxines of diphtheria and tetanus. [Translated by James J. Walsh, M.D.]

Scopolamine Hydrochloride.

Murrell (*Annals of Ophthalmology and Otology*, October, 1895) states that a one-tenth of 1-per-cent. solution of scopolamine hydrochloride is absolutely positive in its control of accommodation, and therefore reliable from one to twelve hours after instillation. In proper strength it is non-toxic; it is the least trouble of any mydriatic; it is convenient in that the examination can be made at any time within twelve or more hours; it keeps well and lasts long, one grain being enough to test the refraction of 500 patients.

Poisoning by Bismuth Subnitrate.

Gaucher (*Répertoire de Pharmacie*, No. 1, 1896) reports four cases of poisoning from the use of bismuth externally, one case terminating in death. The drug employed was found to be chemically pure, so the toxic symptoms could not be attributed to lead. The author divides bismuth-poisoning into three types:

(1) A mild form in which the only symptom is a violet-brown discoloration of the gums.

(2) A more severe form in which there is more or less stomatitis with discoloration of the fauces.

(3) A very acute form characterized by ulceration, fever, hiccough, vomiting, diarrhea, and albuminuria. The last form frequently proves fatal.

Bismuth externally applied forms a soluble compound with albumin, and is thus readily absorbed. When given by the mouth the gastric acid is too weak to act on it, and the alkalinity of the intestinal makes absorption difficult, so that large amounts may be taken in this way without danger of poisoning.

OBSTETRICS.

UNDER THE CHARGE OF

BARTON COOKE HIRST, M.D.,

ASSISTED BY

RICHARD C. NORRIS, M.D., AND FRANK W. TALLEY, M.D.

Intra-Uterine Photography.

Pinard (*Bulletin de l'Académie de Médecine*, No. 10, 1896) reported an experiment performed by Varnier and Chappuis on the uterus of a woman who died of pernicious anemia in December, 1894, at which time she was three and a half months pregnant. This is reported as the first intra-uterine use of the Röntgen rays. The specimen had been frozen and divided by two sagittal cuts and preserved in spirit. The surfaces were accurately adjusted and secured by rubber bands. The cavity of the uterus appeared clear in the centre of the photograph; the outline of the specimen was distinct, and the inequalities in the thickness of the muscular wall could in part be detected. The picture was crossed by two light vertical lines, the lines of the section, and two dark horizontal bars portraying the rubber rings. The fetus could be seen lying at the upper and right side of the cavity face downward, and extending from the fundus to within about four cubic centimetres of the lowest part of the inferior segment. The head was flexed on the thorax and completely in profile, but the ribs and spinal column, which finished very black, showed that the trunk lay obliquely to the right and backward. The outline of the neck, occiput, vertex, and forehead was well marked; that of the nose, mouth, and chin not so distinct. Near the elbow of one of the arms flexed with the hand on the forehead, two dark parallel bands indicated the radius and ulna, and the lower part of one thigh with the knee and lower leg and the dark shadow of the femur were quite evident. Both walls of the gravid uterus, the bladder, placenta, rectum, and fatty tissue had proved more permeable to the rays than the rubber bands a half millimetre in thickness. In the photograph the fetus and its position were more distinctly seen than through the unbroken membranes of an aborted ovum. Pinard believes that it is probable that the uterine wall will be as easily traversed by the rays when recent and full of blood, as when hardened in alcohol, and that the position and attitude of the fetus can be thus ascertained in post mortem specimens without freezing, and so interfering with their microscopical examination.

The Effects of Lactation on Menstruation and Impregnation.

Dr. L. Remfrey (*Canada Medical Record*, April, 1896), in a paper read before the Obstetrical Society of London, draws the following conclusions:

(1) Of suckling women, 57 per cent. only have absolute amenorrhea.

(2) Forty-three per cent. menstruate more or less, but twenty have absolute regularity.

(3) Impregnation does not take place so readily during lactation as at other times, but this is not true to such an extent as has been imagined.

(4) If absolute amenorrhea is present during lactation the chances of impregnation occurring are only six out of 100.

(5) If menstruation occurs during lactation, the chances are sixty in one hundred.

(6) The more regular a woman is during lactation, the more likely she is to become pregnant.

(7) During a menstruating lactation the changes in the uterus are presumably similar to those connected with the ordinary monthly periods, and the mucous membrane forms a nidus for the ovum.

(8) In the woman who does not suckle at all, the menses appear, as a rule, some time in the first six weeks after delivery.

Morbus Cordis—Death during Labor.

Macé (*Annales de Gynécologie et Obstétrique*, March, 1896) has described two cases which occurred in Porak's wards. The first mother was in her fourth pregnancy and had exhibited symptoms of asystolism. During labor fatal syncope set in. The forceps was applied and the child delivered. It was asphyxiated and could not be revived. Mitral obstruction and advanced myocarditis were observed in the mother's heart at the autopsy.

In the second case the mother died of syncope also. There was found an acute edema of the lungs and double hydrothorax. The orifices of the mitral valves were contracted. The child was delivered and revived, but died in five days.

Castration for Osteomalacia.

Curt Poppe (*Schmidt's Jahrbuch*, Bd. ccxlviii, No. 12, 1895) describes the pathologico-anatomical relations of the skeleton, the symptoms, causes, prognosis, and treatment of osteomalacia based upon a careful study of the whole literature of the subject. He has also tabulated all the cases of osteomalacia which have thus far been treated by castration. These amount to 113. Following the standard of Winckel (at least one year's observation) there are 62 cases or 69.3 per cent. cured, 14.5 per cent. of decided improvement, 4.86 per cent. cures after a relapse, 9.67 per cent. permanent relapse, and 1.61 per cent. unsuccessful.

In explaining the action of castration, Poppe attaches much importance to a full anatomical examination of the ovaries removed. He records the results of examination in two of Hegar's cases. There is, he finds, a correspondence between his results and those of other workers, in the following chief alterations in the ovaries.

(1) In hyperemia, with increase in the number and size of the vessels leading to multiple extravasation of blood.

(2) In hyaline degeneration of the arteries.

Poppe believes that it is fully established that there is a pathological condition in the ovaries in osteomalacia, which is corroborated by the success of castration. He, in conclusion, theorizes as follows: "Since the ovaries through their pathological influence produce reflexly, by means of the sympathetic nerves, irritation of the vaso-dilators, or a paralysis of the constrictors of the vessels of the bone, there

arises the known hyperemia of the bones. This leads to the formation in the bone itself of an acid, whether this be lactic acid or, as a result of stasis, carbonic acid, or an acid formed by the destruction of the red blood-corpuscles, and this acid, which shows its presence by the diminution of the alkalinity of the blood, effects the solution of the calcium salts of the bone, and therewith causes osteomalacia. Hence, osteomalacia may be a trophoneurosis of the bone arising from the ovaries."

Pseudo-Encephalic Monster.

William L. Conklin (*Buffalo Medical Journal*, March, 1896) describes a case of labor complicated by hydramnion and occurring six weeks ahead of time, the delivered product having no occiput and imperfectly-developed cranial bones. A short time after the labor a sister of the patient found the cause of the monster,—a Palmer Cox brownie, which had been left in the yard by the children. The mother had stepped upon it during the early weeks of her pregnancy, and thinking it was a toad, of which she had great abhorrence, was greatly frightened. A photograph of the brownie and the baby show a close resemblance.

GYNECOLOGY.

UNDER THE CHARGE OF

CHARLES BINGHAM PENROSE, M.D.,

ASSISTED BY

H. D. BEYEA, M.D.

The Displacement of the Paroöphoron in the Uterine Wall.

Ricker (*Virchow's Archiv*, Bd. CXLII, Heft No. 2) reports two cases where he found a round, yellow body, the size of a linseed, beneath the peritoneum on the anterior surface of the fundus uteri near the uterine cornu. Microscopical sections showed them to be composed of twenty parallel canals, the mouths of which either opened into the peritoneal cavity or were covered with peritoneum. Some of these canals in one case were dilated into cysts. All of the canals were lined with one to three layers of ciliated epithelial cells. Between the canals there was considerable connective tissue and a small amount of muscle tissue. From these characteristic tissues Ricker concludes that the body must be a disseminated paroöphoron. The fact that the developing paroöphoron was partially composed of canals which did not have occluded ends, simply indicates that there was an early cessation of embryonal development. Ricker believes that the above-described condition explains the cases of adeno-fibroma described by Recklinghausen.

Ten Cases of Cancer of the Uterus operated upon by a more Radical Method of performing Hysterectomy.

Clark (*Johns Hopkins Bulletin*, Nos. 59 and 60, 1896), with the two cases already reported, where a more radical method of performing hysterectomy (*Johns*

Hopkins Hospital Bulletin, July and August, 1895; abstracted from the UNIVERSITY MEDICAL MAGAZINE, Vol. VIII, p. 224), records eight additional cases operated upon by the same method. He states that a review of the clinical cause of the cases of cancer of the uterus operated upon by the vaginal and the combined vaginal and abdominal methods in the Johns Hopkins Hospital, between October, 1889, and October, 1895, shows the inherent tendency of cancer to the uterus to remain localized and not to become metastatic, and its certainty to recur if not widely excised. These results are in the main confirmatory of those of Winter and others, and he believes are most important and conclusive evidence of the necessity for a more radical operation than any heretofore proposed. The mortality and regionary recurrence in thirty-seven cases of cancer of the cervix was as follows: 10 per cent. died from the immediate effects of the operation, 38 per cent. died with recurrence, 5 per cent. were not heard from, and 43.2 per cent. were still alive after a period of one to five years. In none of the fatal cases could a distinct history of metastasis to other organs be elicited, but all died from local recurrence. This is further substantiated by the record of ten autopsies on inoperable cancer, which showed metastasis only in one case beyond the pelvis and retroperitoneal lymph-glands. The steps of the operation laid down in the first article remain practically unchanged. He advises that every detail should be marked out on the cadaver before the operation is attempted on the living subject. The operation requires at least two and a half hours for its completion. So far no death from the immediate primary effect of the operation has occurred. These eight cases are reported in detail. The broad ligaments were found involved in all but three cases. The disease was believed to be completely removed, and the prognosis, therefore, favorable in all but two cases. In one of these two cases the bladder and rectum were involved, and in the other the disease had extended to the pelvic wall. One case died almost a month after operation of septic cystitis and pyelonephritis.

PATHOLOGY.

UNDER THE CHARGE OF

JOHN GUITÉRAS, M.D.,

ASSISTED BY

JOSEPH McFARLAND, M.D.

THE LIFE HISTORY OF THE MALARIAL GERM OUTSIDE THE HUMAN BODY.

MANSON (*British Medical Journal*, March 14, 1896) gives first the following summary of the appearance of the parasite *within* the body. Blood from the finger of a case of benign tertian ague, taken an hour or two before or during the stage of rigor and examined in the ordinary way, will show pale, movula-like bodies made up of twelve to twenty spherules heaped together round one or more clumps of black, pigment grains. They are evidently inside the erythrocytes and appear surrounded by a pale ring of hemoglobin. When stained, each little spherule consists of a nucleolus surrounded by a covering of more lightly-stained protoplasm.

On the same slide, similar movula bodies can be found which have escaped from the blood-corpuscles and appear to be falling to pieces. Individual little spherules can also be seen free in the plasma. Careful examination of the erythrocytes show that upon and in them there are certain minute pale spots which further observation will show to be ameboid. When stained, these minute bodies will be seen also to consist of a central nucleolus which lie somewhat eccentrically in a larger unstained area—the nucleus—which has, hitherto, been invisible.

Examining the blood some hours later shows none of the movula-like bodies with their pigment, no scattered spherules, and no minute specks on the corpuscles, but within a certain proportion of the corpuscles actively moving pale ameboid of some size are observed. These constantly change their forms and keep constantly pushing out pseudopodia into the surrounding protoplasm. Staining the bodies brings out the eccentrically-placed nucleolus, the unstained vesicular nucleus, and the lightly-stained surrounding protoplasm.

After several more hours have elapsed, still larger, paler bodies, also ameboid, but each with a new feature—one or more grains of an intensely black or dark fiery red pigment—can be observed. The pigment constantly changes its position.

Still later, a few hours before a paroxysm of fever, the bodies, now no longer ameboid, are seen to fill the corpuscles in which they occur. The pigment granules are coarse and numerous and change their position slowly. Staining shows the nucleus to be less distinct than before. In some of the parasites the pigment is seen to be collected into little groups, or arranging itself in radiating lines, or becoming massed in a central clump. On staining, neither nucleolus nor nucleus can be made out, both having become diffused throughout the parasite. Still later, if the examination be repeated, the movula-like clusters first discovered are re-encountered.

The author considers the subjects of habitual occupation, accidental occupation, and temporary occupation of man by the parasite, and concludes that the parasite finds in man a suitable host in whom it can multiply, but from whom it can escape to extend the species. The escape of the parasite from the body and its subsequent ability to lead an independent existence, the author finds evidenced in the existence of *flagellated bodies* among the parasites. "If we look at . . . slides of malarial blood some fifteen or twenty minutes, or perhaps longer, after they have been mounted, another body whose appearance we had not remarked before comes into view This body is called the flagellated body. It is a strange, weird-looking, octopus-like creature with long, whirling, curling, lashing, tentacle-like arms attached to a central, somewhat spherical mass in which are black melenin particles tumbling about in a state of continual agitation. If we keep on watching this body we sometimes see one or more of the tentacle-like arms break away and swim about in the liquor sanguinis with a spirillum-like movement." The flagellated body only appears after the blood has left the vessels. The origin of the flagellated bodies can be determined by carefully watching the large, pigmented, passive intracorpuscular bodies which still remain in ordinary tertians and quartans after most of the parasites have sporulated.

If we are ulcky in our selection of one of these bodies it may be seen to separate from the corpuscle in which it is contained, and assume the form of a free spherical body. In time the pigment becomes violently agitated, the body itself becomes contorted, jerked about, and then suddenly long flagellæ are seen to project from its surface and wave about. The crescents found in the malignant forms, if watched, may also be seen to change to an ellipsoid, to an ovoid, to a sphere, and, in some cases, finally to a flagellated form.

Manson is of the opinion that the flagellated body is not a degenerative form

of the parasite but a distinctly vital one. He concludes that the crescent body and the tertian and quartan spherical bodies which proceed to flagellation are the extracorporeal homologies of the intracorporeal sporulating bodies; that the flagellum is the extracorporeal homologue of the intracorporeal spore. Both types of sporulating plasmodin have corresponding functions, both arise from the same source; one is the germ of the plasmodin inside the human body, the other is the germ of the plasmodin outside the human body; both function in the propagation of the parasite.

The author next considers in detail the life history of the filaria nocturna, with special stress upon the part in its life history played by the mosquito. It is shown that when the filaria enter the mosquito's stomach they escape from their transparent capsules, and, boring through the gastric walls, enter the muscles, where they await their further development. It is conjectured that the plasmodium is a parasite of the mosquito. The female mosquito fills herself with blood,—supposedly containing the plasmodium,—and then seeks out some dark, sheltered place near stagnant water where her eggs are deposited and she ends her career. The young have various appetites, and prey, among other things, upon the deceased parent, whose body contains the spores of the plasmodium, which go on to development in them, and are subsequently distributed in the water over which the adult mosquitoes hover, or when the winds blow the mosquitoes upon the dry ground, by the death and pulverization of their bodies which together with their excrement form infectious dusts.

In the third paper, March 28, 1896, studies made by Ross upon the changes observed in the blood sucked from malarial patients by mosquitoes are given in detail to show that the stomach of the mosquito is the suitable medium for the flagellated place of the plasmodium malariæ to develop in. The mosquito theory is elaborated at length, the objection to it all combated, and its plausibility urged, but the author closes without having succeeded in proving the things promised in the paper, and leaves the burden of proof for others to carry.

MISCELLANEOUS.

THE WILLIAM F. JENKS MEMORIAL PRIZE.

The fourth triennial prize, of $400, under the deed of trust of Mrs. William F. Jenks, will be awarded to the author of the best essay on "The Etiology and Pathology of Diseases of the Endometrium, including the Septic Inflammations of the Puerperium."

The conditions annexed by the founder of this prize are, that the "prize or award must always be for some subject connected with obstetrics, or the diseases of women, or the diseases of children;" and that "the trustees, under this deed for the time being, can, in their discretion, publish the successful essay, or any paper written upon any subject for which they may offer a reward, provided the income

in their hands may, in their judgment, be sufficient for that purpose, and the essay or paper be considered by them worthy of publication. If published, the distribution of said essay shall be entirely under the control of said trustees. In case they do not publish the said essay or paper, it shall be the property of the College of Physicians of Philadelphia."

The prize is open for competition to the whole world, but the essay must be the production of a single person.

The essay, which must be written in the English language, or if in a foreign language, accompanied by an English translation, must be sent to the College of Physicians of Philadelphia, Pa., United States of America, before January 1, 1898, addressed to Barton Cooke Hirst, M.D., chairman of the William F. Jenks Prize Committee.

Each essay must be typewritten, distinguished by a motto, and accompanied by a sealed envelope bearing the same motto and containing the name and address of the writer. No envelope will be opened except that which accompanies the successful essay.

The committee will return the unsuccessful essays if reclaimed by their respective writers, or their agents, within one year.

The committee reserves the right not to make an award if no essay submitted is considered worthy of the prize.

JAMES V. INGHAM, *Secretary of the Trustees.*

THE SECOND PAN-AMERICAN MEDICAL CONGRESS.

THE Committee on Organization of the Second Pan-American Medical Congress has elected Dr. Manual Carmona y Valle, president, Dr. Rafael Lavista, vice-president, and Dr. Eduardo Liceaga, secretary, and has announced November 16, 17, 18, 19, 1896, as the date of the meeting to be held in the City of Mexico.

The most cordial invitation is extended to the medical profession of the United States to attend and participate in the meeting.

Titles of papers to be read should be sent at the earliest practicable date to Dr. Eduardo Liceaga, Calle de San Andres, num 4, Ciudad de Mexico, D. F. Republica Mexicana.

The date selected is in the midst of the delightful midwinter season, when the climate of Mexico is the most attractive to the northern visitor.

The occasion should stimulate the medical profession of the United States to a most cordial reciprocation of the generous patronage accorded the Washington meeting of the Congress by our Mexican *confrères.*

It should be remembered that the United States is the largest, and in many regards the most important of the American countries, and that as a consequence more is expected of it than of any other Occidental nation. In no particular is this more true than in the maintenance of position in the realm of scientific medicine on the Western Hemisphere. It is, therefore, simply essential that in this Congress—the most important of all Medical Congresses, in its exclusive, yet broad, American significance—the best thought and the best work of the American profession shall be conspicuous in the proceedings.

The zeal and enthusiasm of the Mexican profession and the active interest of the Mexican government are co-operating to make the Second Pan-American Medical Congress attractive, important, and memorable.

Those who contemplate attending should send their names and addresses at as early a date as possible to Dr. Charles A. L. Reed, St. Leger Place, Cincinnati, that the committee in Mexico may be advised of the probable attendance.

William Pepper,
Ex-Officio President.
A. M. Owen,
A. Vander Veer,
Charles A. L. Reed,
Ex-Officio Secretary.
International Executive Committee for the United States.

CORRESPONDENCE.

CASTRATION FOR HYPERTROPHY OF THE PROSTATE.

To the Editors of the University Medical Magazine.

Dear Sirs: It has been my earnest desire since I first proposed castration for hypertrophy of the prostate, in 1893, to determine the true value of the operation. I have, therefore, published all of the unsuccessful cases that came to my notice, as well as the successful ones. With this object in mind, I send the accompanying letters for publication. It is fair to say that a remark in the first letter suggests the possibility of malignant trouble; and that the operation of castration can hardly be said to have had a perfectly fair trial in the

second case where other operative procedures preceded it. Still, it ought to be fully understood that it is not applicable to every case of hypertrophied prostate, and that we are only now beginning to learn in which cases to employ it.

Very truly yours,

J. William White.

———, Mass., May 17, 1896.

J. William White, M.D.

Dear Dr.: I had hoped to add another to the list benefited by your operation, but I have been disappointed. Four weeks ago Dr. ———, of ———, castrated me. So far as the immediate results of the mere operation were concerned, all went well, but the original conditions—frequency of urination, intermittent discharge, some little irritation, and inability to fully empty the bladder—remain. It seems to me, putting my finger into the rection, that in front, it is a little softer, but on the posterior wall, next to the backbone, it feels as though there was a round piece of rubber under the skin, say one-quarter or three-eighths of an inch in diameter. Will tell you later how I eventuate.

P.S.—Am not sorry I was transformed from an uncle to an aunt, for I had a little hydrocele, and, anyway, all the devilish things were good for was to ache.

——— ———.

New Orleans, May 14, 1896.

J. William White, M.D., 1810 S. Rittenhouse Square, Philadelphia.

Dear Sir: One year ago double castration was performed on me by Dr.———, assisted by Dr. ———, with the view of reducing thereby an enlargement of the prostate gland. It has proved a total failure. There is no greater facility in the flow of urine through the urethra than before. The stream is small and force has to be used, and urination is accompanied generally by considerable pain.

There was for some years frequent urination and incontinence. In February, 1893, there was complete retention lasting for two months, which necessitated the use of the catheter twice a day. January 25, 1895, there was again complete retention. It was impossible to use the catheter, and aspiration was resorted to for temporary relief. On January 27, an incision was made above the pubes, and the bladder drained by a tube in the incision for two months. In April, two attempts were made without success to adapt a tube to the opening made January 27. On May 14, 1895, double castration was performed. As soon as the incision was partially closed, so that the smallest-sized catheter could not be inserted, by leaning forward while on the commode and thus closing the incision, the urine passed through the urethra. This was in June, about four weeks after the operation. A catheter was introduced some two days before the operation, but all efforts since have proved unsuccessful. Since September, on the closing of the fistula, for a day or two complete retention has invariably followed, and was only relieved by forcing a passage through the supra-pubic wound, which is always accompanied by great pain. This has occurred a dozen times. The flow through the urethra was not complete, but required two or three and sometimes four attempts, with intervals of from five to ten minutes, this in order to empty the bladder. If there was a free passage through the urethra, the fistula would close, but, as it is, the existence of the fistula is the only protection from complete retention and its consequences. . . . . .

Respectfully yours, ——— ———.

BOOK NOTICES.

Pictorial Atlas of Skin-Diseases and Syphilitic Affections, in Photo-Lithochromes from Models in the Museum of the Saint Louis Hospital, Paris, with explanatory wood-cuts and text. By Besnier, Fournier, Tenneson, Hallopeau, Du Castel, Feulard, and Jacquet. Edited and annotated by J. J. Pringle. Part III. London and Philadelphia: W. B. Saunders, 1896.

Attention has already been directed in this Magazine to the earlier parts of this handsome and valuable work. The portraits are selected from the celebrated Barietta models, of which the grand museum of the Saint Louis Hospital is chiefly composed. Plate 9, in the fasciculus under review, contains four pictures, exquisitely drawn and colored, of "tertiary syphilitic ulceration of the tongue," showing the principal types of ulceration of this organ which occur in tertiary syphilis. The descriptive letter-press constitutes a valuable paper on these affections, and is from the pen of Professor Fournier, so well known in connection with the subject.

Hallopeau contributes a portrait of dermatitis herpetiformis in concentric circles (in cockade-like form), a rare phase of the disease.

Feulard gives the portrait of a syphilitic gumma of the thigh (syphilis unknown and unrecognized). This case well illustrates the importance of establishing a retrospective diagnosis of syphilis in the parents when miscarriages follow each other in a family; and, moreover, the necessity for every surgeon, before having recourse to a surgical operation, to give a trial to antisyphilitic treatment, if the diagnosis is not absolutely certain, in order to avoid grave mistakes, such as occurred in the case reported.

Plate 12 illustrates an unusual disseminated epithelioma of the face, sebaceous in type at the outset, reported by Besnier, with remarks on the treatment. All the pictures are superbly executed, and leave nothing to be desired.

A Text-Book upon the Pathogenic Bacteria for Students of Medicine and Physicians. By Joseph McFarland, M.D., Demonstrator of Pathological Histology and Lecturer on Bacteriology in the Medical Department of the University of Pennsylvania. Philadelphia: W. B. Saunders, 1896.

The aim of the author has been to present a precise account of the technical procedures necessary in the study of bacteriology, together with descriptions of bacteria and their relations to disease,

and he has succeeded most admirably. The first portion of the work deals with the general considerations of the science. In the second part, where the specific diseases and their bacteria are considered, the author has divided such diseases into three classes: the phlogistic diseases, which include the various varieties of suppuration and the granulomata (tuberculosis, syphilis, etc.); the toxic diseases,—diphtheria, tetanus, rabies, typhoid fever, cholera, etc.; and the septic diseases,—influenza, measles, anthrax, relapsing fever, etc. This classification undoubtedly has weighty pathological reasons in its favor, but it does not harmonize with most of the current clinical teaching which considers influenza and measles as toxic as typhoid fever and pneumonia. The details of bacteriologic technique are described most lucidly, and are aptly and profusely illustrated. The descriptions of the various organisms are delightfully clear and explicit, and are accompanied by excellent illustrations. Throughout the book are frequent references to the relations of bacteria to practical medicine, which will make the book one of particular value to the general practitioner.

Color-Vision and Color-Blindness. A Practical Manual for Railroad Surgeons. By J. Ellis Jennings, M.D. (University of Pennsylvania), formerly Clinical Assistant Royal London Ophthalmic Hospital (Moorfields); Lecturer on Ophthalmoscopy and Chief of the Eye Clinic in the Beaumont Hospital Medical College; Fellow of the British Laryngological and Rhinological Association, etc. Philadelphia: The F. A. Davis Co., Publishers, 1896.

It is very gratifying to have this, the first popular book of its kind, come from the pen of one who is resident in this country; and yet, this cannot be wondered at when it is realized how many thousand miles of railroad here, in the United States of America, are cared for by one or more systems of color-testing now so universally in vogue.

The book as written is not offered as an elaborate exposition of the subject, intended for the study and criticism of those who are thoroughly conversant with every detail of the question, but is given simply as a practical and efficient guide to those (the railway surgeons) who wish merely to use it as an every-day companion in their ordinary routine duty of color-testing: as such, after most careful reading, we heartily recommend it.

Giving enough elementary knowledge for the proper understanding of what is to follow; fair in its choice of the best, the most comprehensive, and the simplest of the various methods for detection of faulty conditions; and stating all in a clear and succinct manner, the subject-matter cannot fail to be understood and to give the information desired. To those who need such teaching and training, and to those who are daily brought in touch with such questions, a thorough and repeated perusal of the work cannot fail to help to

accomplish the results desired for by the author,—better protection of the travelling public from injury and greater safety of moving property from loss.

THE PRINCIPLES OF BACTERIOLOGY, a practical manual for physicians and students. By A. E. ABOTT, First Assistant Laboratory of Hygiene, University of Pennsylvania. Third edition. Philadelphia: Lea Brothers & Co, 1896.

The third edition of this excellent text-book has appeared within a year after the appearance of the second edition, which is a very striking proof of the high favor and appreciation which have been accorded it. No fundamental changes have been introduced into the plan or the content of the treatise, but many alterations record the advances which have been made in the science since the previous edition. We miss a careful consideration of the gonococcus, and miss, furthermore, what indeed is properly dealt with by none of the text-books, a consideration of the intestinal bacteria and their rôles in physiology and pathology. The descriptions of technique and the illustrations are most praiseworthy.

A GUIDE TO THE PRACTICAL EXAMINATION OF URINE FOR THE USE OF PHYSICIANS AND STUDENTS. By JAMES TYSON, M.D., Professor of Clinical Medicine in the University of Pennsylvania, and Physician to the Hospital of the University; Physician to the Philadelphia Hospital; Fellow of the College of Physicians of Philadelphia, etc. Ninth edition. Philadelphia: P. Blakiston, Son & Co., 1895.

Little comment is necessary upon this work, which has received such marked commendation from the profession all over the world.

The accuracy and completeness which have marked all previous editions as thoroughly up to date are found in this edition, and if further comment were necessary, the mention of the successful publication of a French edition by the Société d'Éditions Scientifiques, under the editorship of Drs. Gautrelel and A. S. Clarke, would be sufficient.

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MEDICAL MAGAZINE.

JULY, 1896.

A NOTE UPON AN ANOMALOUS CASE OF CINCHONIDIA-POISONING.

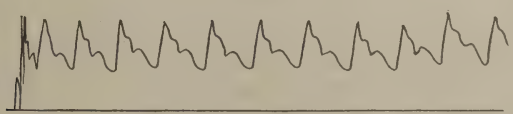
By William Pepper, M.D., LL.D.,

Philadelphia,

Professor of the Theory and Practice of Medicine and of Clinical Medicine in the University of Pennsylvania.

Mrs. X., aged 35 years, consulted me for paroxysmal tachycardia. The paroxysms, which were severe, sometimes followed each other in rapid succession, while at other times the heart's action would remain normal for several days. The sounds of the heart and its dimensions on percussion were normal, the arteries were soft, the pulse-tracing normal, as is seen in Fig. 1.

Fig. 1.



The patient was placed upon a suitable diet, the whole regimen of her life was regulated, and for medicinal treatment she was placed upon a pill of digitalis and cinchonidia sulphate, of which latter drug each pill contained one grain. The first pill was taken after the evening meal. Within three hours she was seized with abdominal pains, nausea, extreme weakness, and was covered with areas of angio-neurotic edema. The hands and feet in particular were much swollen, the color varied from moderate congestion to extreme pallor; there was intense itching. These conditions persisted throughout the night and the following day. The patient at once declared that

she had taken quinine, as that drug had upon previous occasions produced the same signs and symptoms. During the period of intoxication the pulse was hard, in marked contrast to the soft pulse previously noted. The sphygmogram was as seen in Fig. 2. Upon the sec-

FIG. 2.

ond day following the ingestion of the drug all symptoms disappeared, the pulse became soft, and the pulse-tracing was again as first taken. The fact that the patient has never been subject to attacks of angio-neurotic edema (except following a previous ingestion of quinine) and that she did not know the pill contained any alkaloid of quinine prove that these conditions were purely toxic. The action of cinchonidia in this case seems to have been anomalous, since the accepted results of physiological experimentation are that in minute doses quinine produces a temporary vasomotor stimulation, while in toxic doses it produces a pronounced vasomotor paralysis with a marked fall of blood pressure.

CASE OF CARCINOMA OF DESCENDING COLON; EXCISION AND ANASTOMOSIS; RECOVERY.

By John H. Musser, M.D.,

Assistant Professor of Clinical Medicine, University of Pennsylvania,

AND

Thomas S. K. Morton, M.D.,

Professor of Surgery in the Philadelphia Polyclinic.

J. H. M., aged 52 years, a grain-broker, native and resident of Western Pennsylvania, a patient of Dr. William L. Lowrie, of Tyrone, Pa., was seen in consultation by Dr. Musser in August, 1895, at his home.

His father died of apoplexy when 57 years of age; mother is living, aged 79 years. Two brothers are living and well. A sister died of hip-disease in her thirtieth year. He has five healthy children, and lost one, aged 10 years, of epilepsy.

He had had no previous illness of note, excepting attacks of rheumatism in 1885 and 1889, and for twenty years has been subject to frequent attacks of "nervousness." These seizures were marked by curious feelings in the splenic region and back, and accompanied

by vertigo and coldness of the extremities. They have gradually grown more marked. During the latter half of this long period he has much of the time observed a condition of "uneasiness" in the region indicated; also for several years has felt something like a hitch or slight obstruction to action of the bowel referred to that point. A "knotting" of flatus in that region has also been vaguely felt for a long time. Twenty years ago he had a severe attack of pain in the same portion of the abdomen. He was then freely blistered just below the ribs. This pain was dull and aching in character, and has recurred more or less severely at irregular intervals ever since. During the past two years it has been more severe and frequent. For nearly fifteen years the bowel movements have always been of small diameter, and for eight months never larger in diameter than one-third to one-half inch. For a year he had a constant feeling of obstruction upon the left side, accompanied with a sense of fulness upon the right. Five years since he first noted blood in the movements. It continued to be present with each stool in small amount for three weeks. Again, eight months before coming under observation, he began passing clotted blood in considerable quantities. It had appeared especially after the bowels had been inactive, but disappeared when free catharsis was induced. He has always required medicine to produce a satisfactory movement. Twenty pounds of weight have been lost in the preceding eight months. Appetite has been constantly good. Great loss of strength, palpitation, breathlessness upon exertion, and other symptoms of anemia have been present for some months. Vomiting frequently accompanies an evacuation of the bowels. Defecation has latterly been preceded by much pain and colic in the left hypochondrium. Mucus and foul odor have appeared with the stools within a few weeks.

The striking objective signs at the time of the consultation were pallor, undoubted anemia, emaciation, and loss of strength, and a curious appearance of premature old age. The physical examination of the heart, lungs, and urine was negative. The abdomen was moderately distended; tympanitic except in the course of the colon. By ordinary methods of examination nothing unusual was found. The rectum contained some feces. The fecal matter discharged in the morning was small in amount, made up of many small pieces, some tinged with blood and mucus, and free mucus and blood followed the fecal evacuation. The colon appeared to contain feces, and hence high enemata were given till the bowel was empty and nothing but water returned. After emptying the colon of a large accumulation of feces, the patient was turned on the left side. In this position about the seat of pain, and in the course of the descending colon, an

obscure induration was detected. The mass seemed to be half the size of the fist. It seemed to recede on deep palpation. After the high enemata were administered, the auscultatory phenomena seemed to indicate that the fluid was passing through a constricted orifice into the dilated colon above. There was more marked tympany in the course of the colon, replacing the dulness above noted. The stomach was evacuated of its contents, and its size determined by the usual methods of physical examination. It was decided to be free from disease.

There were frequent movements of the bowels, the discharges being small in amount and containing some blood. Pain was the chief subjective symptom. This was situated in the left hypochondria, extending towards the sigmoid flexure. It was increased by pressure, and apparently aggravated by movement and position, a peculiar position having to be assumed with sitting up in order to relieve the affected side.

Diagnosis of cancer of the descending portion of the colon was made. This diagnosis was based upon the age of the patient; the exclusion of organic disease in all the other organs and structures of the body; the occurrence of emaciation and anemia, the cause of which could not otherwise be explained; the subjective symptoms; the occurrence of blood in the stools; the character of the stools otherwise; and the physical signs of an obscure tumor in the region above indicated.

The patient was advised to come to Philadelphia for surgical advice and treatment. He accordingly came to the city on August 21, and was placed in charge of Dr. Morton, who, having confirmed the diagnosis, urged abdominal section and, if possible, excision of the growth.

On August 22, under ether narcosis, an incision three inches in length was made through the left linea semilunaris. Through this opening a mass could be felt intimately connected with the colon, beneath the ribs, and affecting that portion of the gut immediately below the splenic flexure. The incision was then enlarged one inch upward and the whole mass easily delivered outside the wound. It proved to be a neoplasm involving the entire circumference of the colon just below the splenic flexure and about the size of an orange. No adhesions were present and but a single mesenteric gland was enlarged. The latter was located close to the tumor. The wound and abdominal cavity were then effectually walled off by gauze pads isolating the mesentery, bowel, and tumor. The colon was clamped in two places above and two places below the growth, but very wide of all infiltration, after feculent material had been well milked from

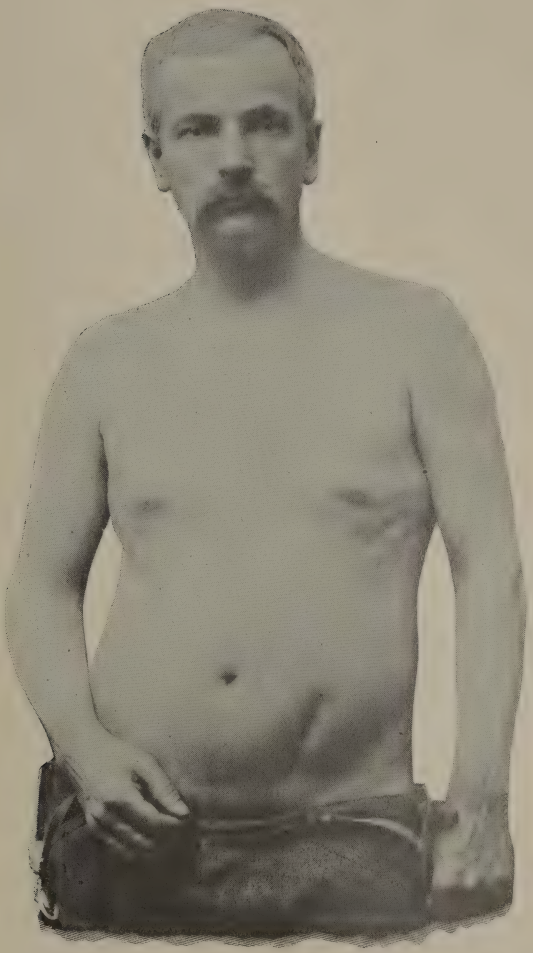
those portions of gut between each pair of clamps. While a stream of salt solution was permitted to flow over the parts, the bowel was divided above and below between the clamps. Then the mesentery was divided cautiously from above downward and each vessel taken up with a hemostatic forceps either before it was cut or immediately after. The tumor, with one and a half inches of uninvolved gut above and below it, was thus removed without especial difficulty. The mesenteric vessels in the grasp of the hemostats were next ligated individually and the previously noted mesenteric gland dissected out. All the parts having been again thoroughly washed with salt solution, one-half of an inch-and-a-quarter Murphy button was slipped into each end of the open bowel. The lower bowel end gave no trouble in adjusting the button and drawing over the intestinal walls by means of the purse-string, but the upper end was found thin and much dilated or "ballooned," and quite attenuated. With a little manœuvring, however, this difficulty was overcome and the purse-string suture drawn tight about the shank of the half-button, which was then pushed together. The considerable amount of tissue upon the upper portion of button interfered with firm and secure closure unless considerable force were employed. Hence thick pads of gauze were placed between the fingers and bowel holding the button before the halves were squeezed together,—thus so distributing the force as to spare great pressure upon any particular portions of the included bowel. It was considered best to run a continuous silk stitch about the anastomosis, bringing together serous surfaces over the junction line of the button. After another wash, the anastomosed bowel was permitted to drop back into the abdomen. The omentum was drawn down about most of the involved region, and, because of the great attenuation of the upper portion of the divided bowel, a small wick of acetanilid gauze was carried through the wound and its end left in contact with the gut just above the anastomosis. This was done to facilitate drainage if the thinned bowel wall should ulcerate or become gangrenous. The parietal wound was closed with silkworm-gut sutures, leaving a small space in the centre for exit of the gauze wicking.

The patient bore the operation well and exceedingly little blood was lost. He progressed well until the second day, when a rise of temperature to 101° F. demanded inspection of the wound. A little serum was found to be escaping along the drain. It was removed and about a drachm of turbid fluid escaped. A small amount of foul serum continued to escape for two days, and was then followed by occasional bubbles of flatus and a little feculent material. Temperature fluctuated from 100° to 101° F. for two or three days and, coin-

cident with diminution of fecal discharge from the wound, then fell to normal. Very little pain was complained of at any time. Several movements of fluid feces—evidently having passed through the button opening—occurred during the first four days. Liquid food was freely taken after the first twenty-four hours. Gas constantly escaped from the anus after the first day. On the tenth day the patient complained of a full feeling in the rectum and, upon inserting a finger, the button was discovered and withdrawn. Its opening was partially occluded by a putty-like mass of fecal material. The small fistula leading out of the abdominal wound now rapidly closed and gave no further trouble. It had evidently been caused by a small perforation of the thinned intestine above the button. The passage of the button was soon followed by a very large formed bowel movement, which was repeated, by the aid of enemata, every day. In ten days he was placed upon full diet and afterwards progressed in strength and increase of weight in a most gratifying manner. In three weeks from the time of operation the bowels were moving naturally and the calibre of the stools was at least an inch and a quarter.

Five weeks after operation he was able to take a long railway journey to his home. Since then he has, from time to time, written most enthusiastic letters stating that he is as well as ever, is attending to a large business, is travelling all over his portion of the country, that his old nervous feelings and anemia have departed, that the bowels are moving without effort like clock-work, and that in calibre the stools continue to be very large. He has gained much in strength and has gradually mounted in weight until at the present time (May, 1896), more than nine months since the operation, he registers 170 pounds, or twenty-five more than when he came under our care, and considerably more than he had ever previously attained.

The growth removed proved, upon examination by Dr. Thomas S. Kirkbride, Jr., to be large-celled carcinoma, involving the entire circumference of the bowel. The specimen measured in length six inches, of which one and a half inches of intestine, on either side of the tumor, was free of involvement in the cancer.



J. H. M., nine months after operation.

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SIMPLE AND EFFICIENT TREATMENT OF CHRONIC CATARRHAL DEAFNESS.[1]

By B. Alex. Randall, M.A., M.D.,

Philadelphia,

Professor of Diseases of the Ear in the University of Pennsylvania and Philadelphia Polyclinic.

The cases of this insidious disease, which brings to its victims steadily increasing deafness, often accompanied by harassing tinnitus and vertigo, have long been regarded as the reproach of aural surgery. It is a pity that every advocate of operative intervention or of some new auxiliary apparatus, especially if it be a "patent ear-drum," is given an eager hearing, if not indeed accepted without a hearing, as the long-desired deliverer of multitudes; while the conscientious and cautious otologist is scorned. And this not merely by the ignorant and credulous laity or some miracle-seeking clergy, but too often by the rank and file of the medical profession. They almost pride themselves on knowing nothing about ear-diseases, and seem to consider most of those who do study them to be mere pretenders, more dishonest, if possible, than the arrant charlatan. They take the well-weighed and limited claims of the trained otologist as a shameful confession of inability to benefit these sufferers, since he does not boast full powers of cure; and if they should look into a text-book and learn that there are sclerotic cases which can hardly be delayed in their downward course by any recognized treatment, they would leap to the conclusion that such cases are many instead of few, and cite this in justification of their mistrust.

The facts are unsatisfactory enough in truth, although not so bad as often represented. The cases of catarrhal deafness constitute about one-third of the aurist's work; but of these only a small proportion are of the pernicious sclerotic form. Far too many of those who consult the aural surgeon are advanced cases who should have been long under treatment, before a large part of their loss had become irremediable; and until discouragement of those needing treatment ceases to be the rule, this will always limit the degree of success attainable.

In the great majority of cases, decided gain will follow rational treatment; and while this may leave the patient possessed of only a pitiable remnant of hearing, this may be many times as great as before, and a most acceptable benefit to him, permitting his retention of bread-winning occupations and the enjoyment of social conversa-

[1] Read before the Pennsylvania State Medical Society, Harrisburg, May 21, 1896.

tion. For the attainment of this result no elaborate apparatus or methods are needed, nor should many careful physicians lack the skill to employ them efficiently. Too many who now have the appliances fail to use them to advantage, and little benefit results, if not, indeed, actual damage.

The naso-pharynx, from which the affection proceeded, must first be gotten into better condition,—a task easily begun, though, perhaps, impossible of completion in the conditions under which the patient lives. Only a small proportion of cases will present deformities or hypertrophies, which compel operative intervention to free the air-passages. Vigorous spraying with an alkaline fluid such as Dobell's in the hand atomizer, will generally suffice to fairly cleanse the pharynx vault; but must be supplemented by mopping the region of the tube-mouths, and any parts to which the mucus clings, with the bent applicator, generally charged with glycerole of tannin or of iodine. An oil-spray can usually advantageously follow,—that of menthol-camphor, 1 per cent. to 2 per cent. being my choice for most cases. This gives a protecting coating to surfaces denuded of their usual covering of mucus and about to be exposed naked to the outer air; while it medicates the cavities with a stimulating, disinfecting vapor, which will saturate every breath of air passing into the nose for a considerable while. It lubricates the nose, too, as is not rarely desirable, for the easy passage of the catheter.

This procedure ought to be fairly easy, although a good catheter is a very important factor, with difficulty attainable. Most of the hard-rubber instruments and many of those of silver are too thick-walled, affording too great rigidity and too little lumen for their external calibre. One of three millimetres external, and two millimetres internal diameter, and thirteen centimetres length, made of virgin silver to secure full pliability, serves me in all but exceptional cases. The auscultation tube with which some workers dispense is to me very necessary. Only by its aid or the examination of the drum-head later can we determine that the tympanum is actually reached by our inflations—the patient's statement as to it is almost absolutely worthless, however honestly made. It is usually easy to place the catheter in position with its beak in the mouth of the Eustachian tube; but its lumen must correspond with that of the tube if we are to succeed, and there is no rule by which this can be accomplished. Ausculting, we know at once whether we fail at first, and can take the proper steps to correct the position.

With the catheter rightly placed, it is easy to substitute the atomizer with its oily spray for the air-bag and to spray the fluid freely up the tube. Whether this will pass clear to the tympanic cavity de-

pends upon the individual conditions; but the oil will certainly be deposited upon the walls of the tube and of the catheter, and subsequent use of the air-bag will generally carry it into the tympanum. Pure fluid petrolatum is highly commended for this use, but I believe we can accomplish more by medicating it, generally with 1 to 2 per cent. menthol-camphor. Any other medication can be employed, such as the Lugol solution, which was Hinton's favorite, to which he ascribed successes such as few have since obtained. Careful use of massage with the pneumatic speculum of Siegle or any equivalent apparatus should always complete the procedure. There are a score of appliances which have been put forward for accomplishing more or less satisfactorily this same line of treatment; but my experience with many of them leaves me in doubt if any are as good, while none are as simple, as this which I advocate. The possibilities of harm are at the minimum, and a year or more of its use in just this form has brought me few cases that did not show distinct benefit. Often patients who had recently left well-known otologists after a long but futile course of treatment, have gone ahead most flatteringly under this; and cases of my own in whom I had been previously able merely to stem for the time the ebbing of the hearing, have been among those who gave evidence of the greater potency of treatment in this form.

The object of this brief paper is to reiterate that long-used methods of treatment have by no means become obsolete, but that with minute attention to improved detail, they may be made still more useful than in the past. Without denouncing the "new" and "radical" procedures which are constantly being thrust into notice, I may fairly insist that better results can generally be secured by avoiding these too much welcomed innovations. It may be best to state that I am personally familiar with the newer procedures of "excision," etc., and do not proclaim them wanting without having weighed them. One must run the risk of being considered a hopeless fossil if he is not an advocate of "advanced methods;" but he does not deserve it unless he condemns them untried. If my operated cases have not been numerous, it is because I have been scrupulously careful in selecting them; but I have seen and must count as failures many of the published "successes" of others, or have promptly benefited greatly by non-operative measures dozens who had just received the fullest assurance that operation alone could help them. The pathology of the trouble must not be forgotten. It tends to a sclerotic thickening or stiffening of the conducting apparatus, impairing its mobility, and, secondarily, often affecting the percipient parts of the organ. This atrophic process must be combated by medicinal and mechanical

measures rationally directed to meet the needs of the individual case. Elimination by operation of the impaired conducting structures might avail greatly, if the advance of the process were not thereby hastened in those that remain. A considerable experience proves that most of the excision cases have lost, in about a year after operation, not only all that it gained for them, but also much, if not all, of the hearing which they previously enjoyed and might never have been deprived of in the ordinary course of events.

The treatment here advocated is not likely to arouse any enthusiasm. It holds out no brilliant prospect of phenomenal success. It is too like many measures considered "just as good," and offers no alluring new instrument to be exploited and then exploded. Many may consider it too simple to merit trial; some will deny it any title to simplicity, since it calls for six or eight steps, each or all of which may be bungled by him who tries to improve on them before he has learned them. Those who will fairly and skilfully test it may find it a real addition to their resources.

THE ANATOMY OF RAPE.[1]

By W. Constantine Goodell, M.D.,

Philadelphia,

Instructor in Clinical Gynecology in the University of Pennsylvania.

The legal definition of rape is "carnal knowledge of a woman by a man, unlawfully and by means of force, against the will and without the consent of the woman." This is practically the same in all civilized countries, the one great difference being the age when consent is allowed by the law. Carnal knowledge may also be rape, even where no resistance is offered, when the victim is idiotic, asleep, or insensible from drugs, or other cause, so as to be in a state of *non compos mentis.*

Another point of the utmost importance is that complete penetration with the ejaculation of semen is not necessary to constitute rape, but that merely partial penetration, by the male organ, between the lips of the vulvar orifice, with or without ejaculation, is sufficient.

We can, therefore, see that it is sometimes difficult, and often absolutely impossible, to say whether the penis has merely impinged upon, or has penetrated just inside, the vulva, unless the amount of violence used in its introduction has been sufficient to cause abra-

[1] Read before the Barton Cooke Hirst Obstetrical Society of the University of Pennsylvania.

sion or laceration. This, however, would not apply to very young virgins, for the disproportion between the male organ and the vagina would most certainly cause some traumatism and, consequently, leave its mark behind.

On the other hand, this condition would not likely be present were the woman of more mature age, or if she had had coitus many times or borne children, for the tissues would then have lost, to a greater or less extent, their tonic contraction, and have become more yielding, and have thus enlarged the genital passage. Rape, under such circumstances, would not be so apt to leave any sign behind it, unless great violence were used.

In a healthy virgin, we would expect to find the labia majora well developed, covering almost completely the nymphæ, which in turn hide the orifice of the vagina. Upon separation of these we come to the hymen, which is, perhaps, of the greatest value in determining whether defloration has occurred or not. It should, however, be remembered that the hymen may persist after coitus, that it has been found perfect after labor, and that it can also be ruptured in other ways than by the male organ.

The hymen is composed of mucous membrane and usually has an aperture, oval in shape, from which it receives the name annular hymen. It can, however, have many different shapes and openings, and is sometimes imperforate, but has never been found congenitally absent in a well-authenticated case by a careful observer. In young children it has been found intact after violent coitus, owing to the size of the male organ and the consequent absence of complete penetration. With the condition of the hymen, also, the probability of forcible connection varies; for in a thick, dense, and unyielding membrane with a small aperture, complete connection could not take place without more or less laceration, which, on the other hand, a thin and elastic hymen would not be so likely to show.

The writer has had in his care just such a case, where conception occurred, although an absolutely perfect cribriform hymen was present. In this hymen the three openings were all too small to allow of penetration by the male organ, but the hymen itself was very thin and yielding, and could be pushed back fully two inches within the vagina. In this case it was necessary to divide the membrane before delivery could be accomplished.

The presence of a perfectly normal hymen is, therefore, not always absolute proof that virginity exists, for there may have been merely partial penetration into the vestibule of the vagina without injury to the hymen, but the evidence is always strongly presumptive that complete connection has not taken place when the hymen is intact.

In fact, there are many cases that, taking the size of the male organ into consideration, we can say absolutely that connection could not have taken place, even with the consent of the female, without injury to the hymen. This, however, is not altogether in accord with some of the older writers, who state that connection may take place without leaving behind it any evidences of penetration, and that this may happen, even after the use of force, as in rape.

In the writer's own experience, he has been able on several occasions in supposed virgins to discover evidences of coition, which had occurred but a few times and a short time previously. This was after a careful inspection of the parts, especially the condition of the hymen, and was done with the purpose of determining the presence of possible pregnancy in the first and the second months, when it was impolitic to ask the question, where only a mere suspicion had been raised, as to the question of conception being present.

To him, however, the chief interest in this subject lies in those cases where there is a suspicion of partial *immissio penis et non emissio seminis*. The evidences for detection in such a case would often prove difficult and sometimes impossible, especially so if but little force had been used, from the youth, mental condition, or insensibility of the victim. To approach this subject properly, however, the external organs of generation should be considered from an anatomical stand-point.

According to Gray's "Anatomy," "the labia majora are two prominent longitudinal cutaneous folds, extending downward from the mons veneris to the anterior boundary of the perineum, and inclosing an elliptical fissure, the common urino-sexual opening. Each labium is formed externally of integument, covered with hair; *internally*, of *mucous membrane*, which is continuous with the genito-urinary mucous tract; and, between the two, of a considerable quantity of areolar tissue, fat, and a tissue resembling the dartos of the scrotum, besides vessels, nerves, and glands. The labia are thicker in front than behind, and joined together at each extremity, forming the anterior and posterior commissures."

Hart and Barbour, however, deny that the internal surface of the labia majora, and the nymphæ in their entirety, are composed of mucous membrane, but in reality of a fine thin skin and not mucous membrane, covered by an epithelial layer. Be this as it may, we can thus see that that portion of the vulva bounded by the edge of the mucous membrane on each labium anteriorly, and the insertion of the hymen posteriorly, makes a space that could be penetrated slightly by the male organ, without showing any evidence whatever of injury to the hymen itself, and yet, could that partial penetration

be proved, it would constitute rape as surely as if complete connection had taken place.

Marks of violence just *inside* the vulvar orifice could then be taken into account, but nothing outside the line of mucous membrane should be medico-legally considered. We can thus see that the expert's duty is one requiring the greatest amount of care and judgment, as well as an anatomical experience and an accurate knowledge of the external organs of generation.

Venereal disease would here play an important part in evidence of sexual contact or coitus in cases of alleged rape. The presence of the gonococcus proving absolutely the nature of the vaginal discharge. We must not, however, lose sight of the fact that specific infection can be contracted in many other ways, its presence only assisting in the diagnosis; and we must also remember that a genital catarrh, non-specific in nature, is very common.

Evidences of physical force are also of great importance, as bearing on this subject, but could not prove rape even if the violence was directed towards the genitals. Their nature should, however, be carefully considered, for they may have been inflicted in many different ways.

Of course, absence of resistance, on the part of the woman, as the result of moral force, fraud, states of unconsciousness, or hypnosis, should be carefully considered, especially so were the plaintiff an imbecile or an idiot.

In the consideration of this form of rape the following case is of interest:

X., 15 years old, was sent to the writer to determine whether rape had been committed upon her or not. She has always been feeble-minded and occasionally has fits. She had an attack of hystero-epilepsy in the office, immediately following the examination; with complete loss of consciousness, frothing at the mouth, convulsive movements of the voluntary muscles, and symptoms following of great nerve disturbance.

Three days previous to the examination, she avers that a man had entered the house, during the absence of the family, and by force had deflowered her. Her story was told in a straightforward way, and with every semblance of truth, the full particulars being carefully gone into.

On examination there was found a slight abrasion, as large as the little finger-nail, on the left side of the vulva, just *outside* the edge of mucous membrane, which is the line of demarcation. There was also a smaller mark of injury, just *outside* the posterior commissure. Either one might have been caused by the attrition of the clothing

in walking. The vulvar orifice presented a perfectly virginal appearance, and the hymen was absolutely intact.

Partial introduction of the left index finger, covered with vaseline, caused much pain, by the over-dilatation of the hymen, and had to be desisted from. The hymen formed a perfect ring around the finger, and was free from any nicks or evidences of over-distention. There were no signs of forcible penetration. A careful microscopical examination of the secretions of the vagina failed to show spermatozoa, only the normal rod bacteria of Dodderlein. An examination of all stains on the underclothing, by the microscope, was likewise negative. The conclusion, therefore, was, that rape had not been committed, notwithstanding the story of the plaintiff as told upon the witness stand.

The writer, after a statement of the methods used to determine the virginity of the plaintiff, properly replied to a question of the presiding judge, that, to the best of his knowledge and belief, she was still *virgo intacta.* The defendant was discharged.

This case clearly shows the difficulties which might have arisen, had the abrasions about the vulvar orifice been just *inside* instead of just *outside*, the line of demarcation. For under such circumstances there would have been grounds for the belief that rape had been attempted, and probably committed, although the cause of such abrasions could not have been satisfactorily determined. Just such a question was asked by the prosecuting attorney, during the case under discussion, and the answer was in the negative.

A brief summary of this paper would be as follows :

(1) That complete penetration, with the ejaculation of semen, is not necessary alone to constitute rape, but that merely partial penetration of the male organ, between the lips of the vulvar orifice, with or without ejaculation, is sufficient.

(2) That defloration of a very young virgin, even supposing that force was not used, should show evidences of rape, from the very disproportion in size between the penis and the vagina.

(3) That the hymen is of the greatest value in determining whether coitus has taken place or not, notwithstanding the unanimous opinion of the older writers to the contrary.

(4) That there is a line of demarcation, formed by the edge of the genital mucous membrane, *within* which, impinging of the male organ, with or without the ejaculation of semen, would as surely constitute rape as though complete penetration had occurred.

(5) The great difficulty and often absolute impossibility of determining whether rape has been committed, when only partial penetration has been secured, and ejaculation has not taken place.

(6) The inability to successfully differentiate between marks of violence due to the penis and abrasions from attrition caused by walking, or some form of traumatism.

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THE SYMPTOMS, THE DIAGNOSIS, AND THE INDICATIONS FOR TREATMENT OF ACUTE INTRA-ABDOMINAL INJURIES WITHOUT EXTERNAL EVIDENCE OF VIOLENCE.[1]

By John B. Deaver, M.D.,

Philadelphia.

Mr. President and Gentlemen,—Members of the National Association of Railway Surgeons: The honor conferred by your distinguished president, Dr. Murphy, in selecting me to deliver the address on surgery before this association is highly appreciated. I fear, however, that I am not able to do full justice to the occasion. The railroads of the United States have assumed such magnificent proportions that to-day they far surpass those of any other land, both as to business and equipment. They represent more capital and employ more men than any other class of industries in this very progressive land of ours, and we, as Americans, must feel a just pride in the accomplishment of such success. Your organization, therefore, represents the medical side of America's greatest industry, and you may be proud of the influence and opportunities for good which are afforded you. The success of your organization, like that of the railroads with which you are associated, is largely due to the completeness and the practical workings of your system.

Our profession is peculiar in its relation to mankind. In olden times the doctor was the priest, and to-day we have not finished our duty to a patient when we have administered the proper remedies for the ailment for which we have been consulted. We must constantly strive to discover other methods to overcome the effects of disease. We give our time, our labor, and make personal sacrifices not for financial returns alone, but because we have a high ideal of duty for which we are glad to make our sacrifices and accept as a reward the knowledge that our work has been well done and that man's life on earth has been made easier, his sufferings less because we have lived. What higher ideal can a man have than the sacrifice of self to the good of others. The happiest man is not he who goes to bed at night and says, I have made so many dollars to-day, but it is he who can say, some one is better off and happier to-day because I live. And this, gentlemen, is the glorious opportunity which presents itself to

[1] Read before the National Association of Railway Surgeons at Philadelphia, May, 1896.

us, and is the reason our noble profession stands in a peculiar position to the rest of mankind.

The rush of progress is so great and the practical side of human character is so largely developed in these the closing years of the nineteenth century that I thought it wise to address you upon a technical subject. In selecting the subject, I have endeavored to present one which is embraced in your line of work,—viz., a review of the symptoms, diagnosis, and indications for treatment of acute intra-abdominal injuries without external evidence of violence.

The general and the railroad surgeon have many interests in common. Railroad surgery being embraced in general surgery, it is impossible to draw lines of distinction. This is a fitting opportunity for me to raise my voice in protest against specialism in surgery. I have always maintained that the general surgeon whose opportunities have enabled him to deal with the various intra-abdominal affections, be they the result of disease or traumatism, occurring in the male or the female, is the more capable from his training than is the specialist, strictly speaking.

The diagnosis and the indications for treatment in the majority of cases of railroad injuries are comparatively simple, and seldom occasion much doubt as to the proper course to be pursued. The cases of severe railroad injury, which constitute an exception to this statement, are those in which there are both profound shock and extensive laceration of the soft tissues with free hemorrhage. I do not agree with those whose practice it is to amputate under these circumstances, with the belief that the presence of the mangled member is a factor in prolonging the shock, and that, therefore, it is necessary to remove it before reaction can be established. I do not believe it to be good surgery to amputate at this time. Amputation during shock will never establish reaction, and bleeding can always be controlled by ligature, an Esmarch tube, or by a tourniquet. In intra-abdominal lesions I would only operate, during shock, where I believed free bleeding was going on. Opening the abdominal cavity for the purpose of controlling bleeding in the presence of shock, cannot be compared, from the degree of severity, with the removal of a limb during severe shock in the absence of uncontrollable hemorrhage. I emphasize this point, as I am sure it is a very important one. I consider that it is in the class of cases to which I am now referring that mature judgment is called for, and this is especially true of those accidents embraced in the title of this address, as there is no type of injury which calls for a more prompt diagnosis as to the probable result of the traumatic forces brought to bear and where immediate operative treatment is so urgently demanded.

The free bleeding which occurs when an abdominal viscus or vessel is torn or ruptured is a sufficient indication for radical measures, and when we realize that peritonitis follows invariably and will probably be purulent in a few hours, we cannot hesitate to state that early section is the proper measure to pursue. Contusions of the solar plexus and splanchnic nerves will give rise to symptoms which may be misleading, but which should not long puzzle the experienced diagnostician.

The arrangement of the bony and muscular anatomy of the abdomen peculiarly protects its contained viscera from the effects of trauma, but it is easy to comprehend how a slight accident may produce grave injury to its contents, when we consider the nature and the importance of the organs, their large vascular supply, their superficial location, and the likelihood of fatal hemorrhage and shock following an injury to any of them. The forces which cause these injuries are percussive, concussive, and crushing. The injuries produced by percussive force are rupture of the solid viscera, and of the hollow viscera when filled with solid, semisolid, or fluid matter. Concussive force causes rupture of the mesentery or mesocolon or of the blood-vessels, and sudden violent displacement of the partially movable viscera. Crushing force may cause any of the above-mentioned conditions, and by direct compression cause pulpification of the solid viscera, or partial destruction of the walls of the hollow viscera, which sometimes results in pressure necrosis, and subsequent fecal or urinary fistula.

Every surgeon present has undoubtedly at some time in his experience, either in private or railroad practice, met with cases in the class covered by the title of this paper. These are cases in which the history and the general condition of the patient give the impression that there is a serious lesion within the abdomen, and yet upon examination we find total absence or only slight evidence of external injury. The tendency, I fear, with many is to treat these patients tentatively, only to be awakened at the autopsy to the fact that a rupture or a tear existed in the abdominal cavity, which by early radical operation might have been relieved. The mortality in these cases is appalling; reference to the literature of the subject will amply bear out this statement. The immediate effects of an injury, severe enough to cause a serious lesion of an abdominal viscus, are sometimes so slight, however, as to be misleading. Very often a patient will walk to a conveyance or to a hospital, complaining only of slight pain. In varying periods of time following the injury more decided symptoms develop,—namely, signs of hemorrhage, if the solid organs be involved, early peritonitis if the hollow viscera be ruptured or torn sufficiently to allow their contents to escape.

In discussing the lesions of the abdominal viscera, I will speak of them in the order of their frequency. As it is impossible to group the symptoms so as to designate the particular organ or organs injured, the symptoms indicative of injury of each will be detailed. In cases of severe intra-abdominal injury there are a few symptoms which are common to all, and in the majority of instances warrant immediate operative interference. The most prominent of these is pain which is accompanied by shock, the degree of the latter depending upon the extent of the injury, the amount of blood lost, and the temperament of the individual. Temperament and nationality have a strong bearing in the production of shock. Persons of a highly nervous temperament suffer more from shock than do phlegmatic individuals. For example, Americans are far more liable to suffer a severe degree of shock following injuries or operations than are Germans. The pain in these injuries is peculiar and difficult to describe, but is readily recognized by one who has seen many of these cases, and by the patient himself. It is not like that of the ordinary intra-abdominal affections, but is described by the patient as if something had given way or ruptured, and is usually accompanied by a consciousness of impending death. There is present also tenderness, which will be more or less localized unless the ensuing peritonitis be general. In the early stages of the injury, when the shock is most profound, the pain may not be so pronounced, and if large doses of opium are administered it may be masked throughout the entire course of the trouble. When vomiting is associated with intense and agonizing pain, and when tympanites is also present, the indications clearly point to either intestinal or vesical rupture. On the other hand, if there is collapse with evidences of rapid exsanguination, this would point to hemorrhage from rupture of one of the larger vessels or from rupture of the liver or spleen. The vomited matter rarely contains blood unless the injury be one of the stomach or the duodenum, yet, if the injury to either of these organs be such as to establish a communication with the peritoneal cavity, vomiting may be absent, or, if present, may show no evidence of blood.

There is often seen a characteristic rigidity of the abdominal walls, which is due to intra-abdominal irritation. I have seen it so pronounced as to call to mind the checker-board appearance of the normal abdominal wall as represented in sketches by artists of former times. This characteristic rigidity will, of itself, in my judgment, warrant in the bulk of instances opening of the abdominal cavity. This condition of the belly walls, in my experience, has been invariably associated with some form of serious intra-abdominal lesion. Associated with the peculiar rigidity is the severe abdominal pain,

increased by the slightest movement or pressure. The rigidity under the foregoing conditions is quite as characteristic of a severe lesion as is rigidity of the lower right quadrant of the abdominal walls in acute appendicitis when associated with the two remaining cardinal symptoms of this affection,—namely, pain and tenderness.

Restlessness consequent upon traumatism, while always indicative of a severe type of injury, is especially well marked in the class of injuries under discussion.

In dealing with injuries of the abdomen in the female, pregnancy, extra-uterine pregnancy, ovarian tumors, pyosalpinx, etc., must be borne in mind.

Rupture of any of the solid viscera of the abdomen is usually followed by fatal hemorrhage.

The abdominal organ most commonly injured is the liver. This can be readily understood when one recalls the size of the organ, its location, and its friable nature. Further, from its great blood-supply, it also can be understood why a rent of any size involving this organ will be immediately followed by serious bleeding. In connection with rupture of the liver the gall-bladder is also liable to be torn from the relation it holds to the liver.

The symptoms of rupture of the liver are usually great lividity of the skin, marked embarrassment of respiration, distention of the abdomen which is not altogether tympanitic, itchiness of the skin, and, if the patient survives the immediate effects of the injury, jaundice.

Rupture of the gall-bladder or biliary ducts may occur as the result of blows upon the abdomen, especially if the gall-bladder be filled with gall-stones. The commonest seat of rupture of the biliary organs is the cystic duct.

Peritonitis follows rupture of the gall-bladder or ducts. If the tear be small and the leakage slow, the escaping bile may become encysted and the peritonitis remain localized. If rapid, there will be general peritonitis and death. If there be no rapid extravasation, there will be collapse, vomiting, and dyspnea and abdominal pain. If the bile escapes into the general peritoneal cavity, there will be prompt general acute peritonitis, with intense jaundice and clay-colored stools. When the gall-bladder has been ruptured death almost invariably follows.

Mr. Battle[1] reports a case of rupture of the bile-duct in a boy, 6 years of age, who was run over by a cab, in which there was but slight shock without much pain or tenderness. Vomiting began early and persisted. On the fifth day slight jaundice developed. He was

[1] Lancet, London, 1894.

operated upon on the eighth day, and the abdominal cavity was found filled with bile. He died on the morning of the ninth day.

Autopsy.—Liver and gall-bladder were intact, but about half an inch beyond the junction of the cystic and hepatic ducts the common duct was found to be torn completely through. No other injury was found.

The treatment of laceration of the liver and of the gall-bladder, the hepatic, the cystic, or the common duct resolves itself into prompt surgical interference. The custom among surgeons to treat such injuries by operation after all other means have failed has been universally followed by a fatal result; therefore, if the injury to the viscus is of such a character as to partially or completely destroy its functional activity and the resulting hemorrhage almost sure to cause a fatal issue, it would be far better even under such circumstances to give the patient the benefit of a section and possible treatment by operation.

If a tear of the liver be superficial, by early operative interference we are enabled to remove the blood and bile which have escaped into the peritoneal cavity, to surround the rent with strips of gauze with a twofold object: (1) to prevent a second invasion of the peritoneal cavity by blood or bile; and (2) to invite adhesions between the liver and parietal peritoneum.

The hemorrhage can be controlled by searing the torn surfaces with the actual or thermal cautery or packing with gauze strips.

When the tear in the liver is of such a character as to permit of suture, the latter, which should include the capsule, should be used. If there is doubt as to the thorough control of the hemorrhage by the sutures, the wound should be treated by the open method, gauze strips being placed between the liver and the parietal peritoneum to the outer side of the line of suture.

When the gall-bladder, the hepatic, cystic, or common duct has been torn alone or in connection with injury to the liver, it may be necessary to establish a biliary fistula; however, the attempt, if possible, to suture the bladder or duct should be made.

Rupture of the spleen is less common than of the liver, and is usually found in conjunction with injury to other abdominal viscera. The cause of death in the majority of instances is hemorrhage, though it is not apt to occur so soon as in rupture of the liver. This fact is accounted for by the elasticity of the capsule of the spleen and its trabeculæ. Injury to the splenic artery or vein is invariably followed by sudden death. When there has been considerable bleeding and the patient survives, abscess is the result. The spleen may be displaced or even reversed from its normal position by trauma. The symptoms

of ruptured spleen are those of exsanguination, precordial pain, gasping and shortness of breath (air hunger), weak, rapid pulse, vomiting, and thirst. Slight lacerations of the spleen may be followed by left subdiaphragmatic abscess, when the question of diagnosis between this condition and that of left-sided empyema, particularly if encysted, would arise.

When the spleen has been the seat of the injury under consideration, its removal should follow.

The preferable incision for the removal of the spleen is a longitudinal one through the left semilunar line, commencing at the border of the ribs.

The injuries which result to the kidney from traumatism, to the abdominal wall, or to the loin are contusion, rupture, and laceration.

Rupture of the kidney is not an infrequent sequel of injury to the loin, although anatomically this organ is well protected. Death does not always follow such an accident. The two most important factors in the recovery are the plugging of the renal blood-vessels, which controls the hemorrhage, and the compensatory work of the other kidney. If, however, the renal vessels or a large branch be torn, death will promptly follow from hemorrhage. If the peritoneum be involved in the injury, a fatal peritonitis is almost invariable. When the patient survives the immediate effects of the accident, abscesses are apt to form, and, by secondarily involving the peritoneum by sloughing, cause a fatal issue.

Rupture of the kidney varies in intensity and location. There may be one or more small surface tears, or the organ may be torn completely through, either transversely or longitudinally.

Laceration of the pelvis or ureter is not immediately fatal, as it is not accompanied by extensive hemorrhage. The inflammation following obliterates the duct, consequently there will be developed in a few days a hydronephrosis, with a corresponding tumor of the loin. In some cases the kidney will become a multilocular abscess after long periods of time when the impervious ureter atrophies.

Simple contusion of the kidney gives by far the best prognosis both as to life and for the recovery of the organ. Hematuria is usually present, but may be absent from an occlusion of the ureter by clots. The urine is usually voided naturally, although it is mixed with large quantities of blood. Hematuria following injury to the loin or lumbar region is not always symptomatic of ruptured kidney. If clots of blood block up the ureter, the blood and urine cannot reach the bladder, and must remain above the obstruction.

The symptoms of severe injury to the kidney or ureter are frequently so indefinite and obscure as to make a diagnosis extremely

difficult. The urine may be passed normally and show no sign of any injury. Collapse invariably follows the accident, and is accompanied by pain in the lumbar or hypochondriac region, vomiting, and an anxious countenance. If along with the other symptoms the urine contains blood and blood-casts, which in a few days begin to gradually disappear, it is safe to believe that the kidney has been contused or slightly lacerated.

If, on the other hand, there is a history of severe injury to the abdomen or loin, followed by faintness, anxious countenance, coldness, vomiting, and severe abdominal pain; if the urine contain blood in quantities, either clotted or mixed, immediately or within a day or so after the accident; if in several days pus appear as well as blood; if there is rigidity of the lumbar or abdominal muscles and ureteral pain with retraction of the testicle; and if these symptoms are followed by enlargement of the lumbar and hypochondriac regions, with percussion dulness, we may be fairly sure that extensive renal laceration has occurred. Rupture of the pelvis of the ureter is extremely rare; in a few cases reported the tear was so close to the hilus of the kidney that practically they may be considered as rupture of the kidney itself. The position of the ureter protects it from the class of injuries under discussion. The symptoms are the same and the treatment identical.

With few exceptions, it is my practice in exploring the kidney or its space to carry the incision through the loin, beginning it over the outer border of the erector spinæ muscle, prolonging it obliquely inward, downward, and forward. In this wise not only the kidney but the ureter as far as the brim of the true pelvis can be explored without opening the peritoneal cavity. The patient should lie upon the opposite side with a hard pillow under the corresponding flank.

The exposure afforded by this incision and the position of the patient offers increased facility when dealing with the renal vessels.

The stomach is less frequently injured than are the intestines, on account of the position it holds, being protected laterally and partly in front by the ribs and costal cartilages, also by the liver; and from the fact that it is partially surrounded by the intestines. It has been found lacerated in connection with injury to the other abdominal viscera. The rent in the stomach wall may be partial or complete, or the entire organ torn across.

It is not uncommon for a patient in whom the stomach has a complete laceration to succumb immediately after the receipt of the injury.

The stomach is most frequently torn near the pyloric extremity; however, lacerations have been found on either curvature, and the

organ has been found completely torn across. In the latter instance this always occurs at or near the pylorus.

Rupture of the large or small intestine, as in the case of the stomach, may be partial or complete. Partial rupture may not be directly followed by any diagnostic signs.

The ileum and jejunum are the most frequent seats of intestinal rupture. The perforation of the bowel may be either primary or secondary to pressure necrosis.

Leakage of the contents of the bowel does not always follow intestinal rupture, although this is more liable to occur when the intestines are filled.

The symptoms of gastro-intestinal rupture are seldom typical; in some instances there is great shock, collapse, nausea, or vomiting, with agonizing pain, followed in a few hours by dissolution; while in other instances the patient will be able to enter the vehicle unaided, or even walk to his home or to the hospital with but slight assistance. Pain may be absent altogether, or it may not appear for several days.

There are many symptoms common to both gastric and intestinal rupture. I will, therefore, describe them together.

The symptoms to be considered are those which follow immediately after the receipt of the injury and those occurring secondarily.

The immediate symptoms are faintness, collapse, agonizing pain, either localized or general, weak, rapid pulse, thirst, vomiting, tympanites, and rigidity of the abdominal walls accompanied by extreme tenderness. The facial expression is indicative of the serious nature of the intra-abdominal lesion.

We should never wait for secondary symptoms if the patient's condition warrants operative interference.

The diagnosis under ordinary circumstances is not a difficult one to make; acute pain, tenderness, rigidity, vomiting, or bloody stools being present, there should be no hesitancy in advising immediate operation. Any one of the foregoing symptoms may be absent. There is always, however, marked rigidity, tenderness, and pain; these in themselves should be considered sufficient evidence.

Where operation has not been resorted to the above symptoms may redevelop, at a later period, in an insidious and unexpected manner, and the patient suddenly expire from either shock or general septic peritonitis due to intestinal perforation from pressure necrosis.

The prognosis of gastro-intestinal rupture is exceedingly grave unless immediate operative measures are instituted. The fatal result is usually from shock, hemorrhage, or peritonitis.

Incomplete tears of the stomach do not produce sufficient symptoms to render their recognition possible. They are met with, how-

ever, in conjunction with injury to the liver or spleen. Under such circumstances they may be disposed of by the introduction of Lembert sutures. To repair complete tears of the stomach the mucous membrane should be united with a continuous or interrupted suture, the muscular and serous coats by the continuous Lembert suture. When the wound is in the immediate neighborhood of the pylorus, and particularly if it is longitudinal, it will be necessary to introduce the sutures in the line of the long axis of the stomach in order to avoid constriction of the orifice, as in the operation for pylorectomy for stricture.

In lacerated wounds of the stomach it may be necessary to pare the edges in order to secure perfect apposition.

When there is a considerable area of contusion with ecchymosis of the walls of the organ rendering the stitches less likely to hold, an omental graft may be necessary.

When the stomach has been completely torn across, the two portions are united by a double tier of sutures, the first including the mucous membrane, and the second the muscular and serous coats.

What has been said of the repair of wounds of the stomach is also true of the intestines under the same conditions, with the exception of a complete tear of the bowel, when it may be best to invaginate either end of the torn bowel and perform lateral anastomosis after the method devised by your worthy president, Dr. Murphy.

Rupture of Stomach.—J. B., aged 19 years, was admitted to the German Hospital, March 25, with the following history: About half an hour previous, while driving a wagon, he was run into by a trolley car, thrown from the wagon, and was struck by his horse upon the abdomen. Though suffering pain he got up, but in a few minutes had violent epigastric pain, vomiting, and dizziness, without loss of consciousness. He was brought to the hospital in the patrol-wagon, walked unaided into the dispensary, and was at once admitted. His temperature then was 97$\frac{2}{5}$° F.; pulse-rate 96; he had severe pain over epigastrium and spasmodic attacks of vomiting; no blood in vomitus. Tenderness was marked over the entire abdomen and the rigidity was pronounced, particularly over the recti muscles. Vomiting continued, pain increased despite two hypodermic injections each of one-sixth grain morphine sulphate; at no time, however, was blood found in the stomach contents ejected.

Diagnosis was made of internal hemorrhage and immediate operation decided upon.

Upon opening the peritoneum about one pint of dark, partially-clotted blood spouted out; the pelvis contained no bleeding point, the incision was prolonged upward, and the bleeding was found

to come mainly from recently-broken adhesions about a highly-inflamed and infiltrated appendix. Grains of corn and particles of food being noticed, the cecum and intestines were carefully and rapidly examined, but no rupture could be detected. The abdominal cavity was irrigated with a warm normal salt solution ; the incision was again prolonged, and a rent in the great curvature of the stomach was found four inches long, extending almost to the pylorus. The opening was closed by Lembert sutures, the abdominal cavity again irrigated, and the wound closed.

The boy was in fairly good condition after operation ; peritonitis developed, however, and death ensued forty-eight hours afterwards.

The mesentery may be torn in one or more places, from which large quantities of blood are lost.

H. M. C., colored, aged 16 years, was admitted to the German Hospital on the evening of December 3, 1894, with the following history : While playing about some moving freight-cars he was accidentally caught between the bumpers, sustaining an injury to his abdomen. Examination upon admission failed to disclose any evidence of external injury. The introduction of the catheter drew clear urine. There was a moderate degree of shock, and the patient complained of severe pain in the abdomen and tenderness on palpation. Further investigation proved negative.

The resident surgeon, not deeming the case of sufficient severity to send for me, treated the patient for shock. When I examined the patient upon the following day, it was very evident from the severity of the abdominal pain and the tenderness associated with decided rigidity of the abdominal walls, that he was suffering from a serious intraperitoneal lesion. I decided to open the abdomen at once. As soon as the peritoneal cavity was opened a large quantity of dark liquid blood escaped. The small intestines were delivered, when the cause of the lesion was found to be a ruptured mesenteric vein, the bleeding from which was arrested by the presence of a large diffused blood-clot occupying the interval between the layers of the mesentery. To make sure that there was no other lesion, the large intestines, the stomach, the liver, and the spleen were carefully examined, but with a negative result. The abdominal cavity was washed out with warm saline solution, glass drainage was introduced into the pelvis and the wound closed. Recovery was uninterrupted.

L. C., male, Italian, aged 35 years, was admitted to the German Hospital, with a history of a fall of about fifty feet, striking upon his abdomen. He was profoundly shocked and exsanguinated. The

only external evidences of injury were some slight cuts on the hands and head. From the peculiarity of the pain which was associated with abdominal rigidity, a diagnosis of internal hemorrhage was made, and the abdominal cavity was opened. Dark liquid blood escaped as soon as the peritoneum was opened, and the source found to be the mesenteric vessels. The mesentery was torn half-way across and the intestines lacerated in four places. The mesentery was united with a series of catgut sutures, and the rents in the intestines closed with Lembert sutures. The abdominal cavity was washed out with hot saline solution and closed. He died two hours after the operation.

A very interesting and unusual case of secondary perforation of the intestine, which recovered from the acute symptoms, only to develop after five months a fecal fistula, is reported by Dr. Paul F. Eve.[1]

The patient, a brakeman, was injured by falling between the engine and car, his body being caught between the bumpers of the same. He was unconscious for several hours. When Dr. Eve saw him first he was still suffering from shock, and complained of great pain in abdomen and back. He had several vomiting spells, the vomited matter being dark in color and of an unpleasant odor, vomiting commencing three hours after injury. An examination of the back and abdomen brought on attacks of nausea, followed by vomiting of dark, offensive, stercoraceous matter. Examination of the back, after the patient became quiet, revealed two large excoriations extending from the ninth dorsal vertebra to the sacrum. There were no excoriations or evidence of internal injury on the abdomen, although it was tympanitic and tender. He had no action of the bowels for five or six days prior to injury. Temperature 101° F., pulse 130, respiration 28. Free evacuation of bowels was followed by decrease in the pain; the pulse became stronger, temperature fell to 100° F., and the abdomen became flaccid. An examination of the abdomen at this time was negative. The patient slowly improved, and by the end of the fifth week was able to get out of bed and to walk about the room. About the sixth week he complained, however, of some colicky pain in the abdomen, which was attributed to fermentation of food. About the ninth week he was taken suddenly with severe pain in the bowels, accompanied by very audible gurgling sound and a knotting of the intestines, which could be plainly felt through the abdominal walls. Some weeks after a tumescence developed in the hypogastric region, extending to the left inguinal and reaching as far back as the lumbar region. There was no fluctuation.

[1] International Medical Magazine, 1893 and 1894, Vol. II.

Upon the following day an abscess broke and a large quantity of pus accompanied by gas of a decidedly fecal odor was discharged. The following day fecal matter escaped through the opening. An operation for the relief of the fistula was performed, but the patient rapidly sank and died shortly afterwards.

An autopsy was made upon the following day, and, strange to say, the peritoneum was almost normal in condition, save in the portion around the fistulous tract. There were evidences of inflammation of the solar plexus and the splanchnic nerves.

The early recognition of rupture of the bladder is of paramount importance to a successful termination of a case. The delay for even a few hours of the recognition of this condition may be followed by disastrous results. Rupture of the bladder may be partial or complete and intra- or extraperitoneal. Of the two forms of rupture of this organ the intraperitoneal is of necessity the graver condition. Ordinarily there should be little difficulty in determining the presence of rupture of this viscus. When a patient presents the history of abdominal contusion the bladder should be the first organ explored. The introduction of a catheter into the bladder will definitely settle the question of its rupture. If upon the introduction of the instrument no urine escapes, but instead a few drops or a considerable quantity of blood, the inference should be that the organ has been torn. Before the catheter is withdrawn, a measured quantity of boric acid or normal saline solution should be injected, when, if the full amount thrown in is not recovered, there can be no question of the nature of the injury. If the tear be intraperitoneal, more liquid than that thrown in may be recovered or, perhaps, less; when this is the case after the first injection, therefore, it is advisable to repeat the injection two or three times.

Where the tear is so small as to prevent the free escape of the injected fluid, or where the opening in the bladder is valve-like, occasioned by a loop of intestine becoming herniated through it, this means of diagnosis may fail. In either event the prevesical space should be immediately opened, when it can be decided whether an extra- or intraperitoneal rupture exists. Some surgeons prefer to open the peritoneal cavity at once, believing that it offers greater advantages for exploration, on account of the limited amount of room afforded by the prevesical space, for closure of the rent and for the placing of drainage. I cannot agree with the gentlemen taking this position, but, to the contrary, believe that it is best to first open the prevesical space, when it can be determined whether the rupture is extraperitoneal, and, if so, the necessary treatment to be carried out. If the rupture is found intraperitoneal, the abdominal incision is

carried upward and the peritoneal cavity opened, when the rent is located and properly disposed of. In the extraperitoneal variety of rupture, the urine will escape in one of the following directions,—namely, in the connective tissue around the neck of the bladder, along the sides of the pelvis, in some instances extending up to the kidney space, and between the anterior parietal peritoneum and abdominal walls. When the rent in the bladder is extraperitoneal, it is necessary to drain the prevesical space by a drainage-tube carried through the abdominal incision ; if the urine has found its way along the sides of the pelvis, drainage should be introduced laterally through an incision above and to the outer side of the middle of Poupart's ligament. The bladder is also to be opened by a lateral incision through the perineum.

In the event of diffuse pelvic cellulitis with abscess-formation, in order to obtain the most thorough drainage, it may be necessary to drain posteriorly by the removal of the coccyx alone or in connection with a portion of the sacrum.

Injury to the Vascular System.—The most important blood-vessels of the abdomen which may be ruptured subcutaneously are the aorta, the celiac axis, the mesenteric, and the spermatic vessels, the vena cava, and the portal vein. The forces which usually cause rupture of these vessels are either of the percussive or crushing variety. If the force applied is not sufficient to cause rupture, the vessel wall may be weakened to such an extent as to produce an aneurism consecutive to the injury. This takes place when the inner coat of the vessel has been torn and the outer one weakened. Lever reports an instance where a female was injured by a sharp blow upon the abdomen which was followed by an aneurism of the common iliac artery.

The symptoms of injury to blood-vessels will depend, first, upon their size, whether the traumatism involved all the coats of the vessels, and if hemorrhage has occurred. When the injury has involved only the walls of the vessel the symptoms do not occur immediately, but appear later, the result of either diminished blood-supply or gangrene. An artery and its accompanying vein may be torn simultaneously, and under such circumstances gangrene will invariably follow.

The diagnosis of injury to the vascular system is unsatisfactory at best, as the injury to the vessel or vessels may be complicated by an injury to the abdominal viscera, entirely overshadowing the blood-vessel lesion.

The prognosis is grave under all circumstances, even when there has been only a contusion, for we must fear the possibility of future aneurism from weakened vessel wall the result of the trauma.

The almost universal fatality of intra-abdominal lesions of traumatic origin is so well recognized that it seems as if there could hardly be any question as to the wisdom of opening the abdominal cavity. I would not be understood as meaning that abdominal section should be used as a means of diagnosis, but, on the contrary, I believe that every known means, with attention to the most minute details, should be exhausted in establishing a diagnosis. When a diagnosis is impossible, abdominal section is justifiable only when it becomes the last and only chance for the patient.

I have refrained from using the terms exploratory and diagnostic incisions, believing that they not infrequently serve as a shield to cover a lack of diagnostic ability. It is a moral obligation resting upon every physician and surgeon to develop to the utmost of his ability the highest diagnostic attainments.

Aseptic surgery has, undoubtedly, been one of the greatest boons to humanity that the nineteenth century has brought forth; but to me it seems that it offers a great temptation to men who have not had surgical training, and who, therefore, lack the requisite skill, to do operations which are not always necessary for their patient's good.

THE "NEUROTIC HABIT" AS A CAUSATIVE FACTOR OF HAY FEVER. WHAT DOES IT AMOUNT TO?[1]

By Charles Prevost Grayson, M.D.,

Philadelphia,

Lecturer on Laryngology and Rhinology in the University of Pennsylvania; Physician in Charge of Department for Diseases of the Throat and Nose, University Hospital.

A portion of our last lecture was devoted to the clinical history of Hay Fever, to a capitulation of the different factors concerned in its production, and to the means of detection and removal of one of these,—the particular nasal lesion associated with each case. The restoration of the nasal chambers to a state of health eliminates probably the most important of the three elements causative of the disease. The other two, you will remember, are the atmospheric irritant and the so-called neurotic habit. Concerning the former of these I have nothing to add to what I have already said of it, but it is in a some what searching investigation of the latter that I would have you join me this morning.

[1] Lecture delivered in the course on Laryngology and Rhinology at the University of Pennsylvania.

Of late years medical literature has shown the rapid growth in popularity of certain terms having reference to the nervous system. Of these you have an instance in the one just used,—neurotic habit,—and others of like character are neurosis, neurasthenia, nervous temperament, and hysteria. These terms are all distinguished by their vagueness, by the shifty way in which they dodge questions of pathology, and limit themselves merely to the indication of certain groups of symptoms. And it is this non-committal character, this muchness or littleness of meaning, as the user chooses, that makes them so convenient for the man who is not quite sure of the intimate nature of the affections to which he applies them. To the discerning mind they convey nothing more than the suggestion of an unstable nervous organization, such as is found in association with, or, perhaps, dependent upon many widely varying disease conditions.

This may sound rather digressive, but its application to our present subject lies in this, that I shall endeavor to convince you that it is an error to regard the nervous system as *particeps criminis* in the causation of hay fever; that it is more sinned against than sinning; and that, though the "neurotic habit" may exist, it is by no means essential to the development of this disease, even in its most aggravated forms. You are not to infer from this, however, that I would deny that the nervous system is at all implicated in this malady. It undoubtedly is, but as a victim, not a culprit. You will understand me better if I come at once to the point of my contention, which is this, that the last of the three factors, whose association results in hay fever, is a defect not of the nervous but of the nutritive system. There is no doubt in my own mind that the digestive tract is the cradle of the systemic error concerned in this disease. Instead of immediately giving you my reasons for this belief, let me briefly epitomize for you the arguments of those who place the nervous system in the dock beside the nasal lesion, and hold it to be equally guilty with the latter in fomenting this annual disturbance. You will find at the outset that their reasoning is wholly inferential. They do not pretend that there is any demonstrable lesion of the nerve tissue. Considered as a neurosis, the disease is one of a purely functional nature, the particular function disturbed being the controlling power of the vasomotor centres over the vascular supply of the pituitary membrane. I may say here in passing that I do not think this impairment, this temporary suspension of vasomotor control, is any more to be accepted as at once the effect and the proof of a coexistent neurotic habit, than is the sudden urticaria or roseola which, in some individuals, follows quickly upon the ingestion of certain articles of food.

A fact upon which the advocates of the neurotic theory base a large portion of their faith, is the existence in many of these patients of a strong hereditary tendency to various nervous disorders. They assert, what, indeed, cannot be contradicted, that in the pathological pedigree of the hay fever sufferer will very commonly be found a record of such maladies as epilepsy, chorea, hysteria, melancholia, and others of like character. But, in conceding this, I do not think that we thereby necessarily admit that their argument is strengthened in any material degree. If we consider for a moment this group of disorders that I have just mentioned, we will find that a large, if not the larger, number of each of them can be traced to a primary fault of nutrition. Within the past year, for instance, quite a considerable proportion of epilepsies have been shown to be the outcome of an auto-toxemia occasioned by putrefactive processes distributed throughout the intestinal tract; the clinical proof of this being contained in the fact that with the control of these morbid processes the seizures have promptly terminated, and have as promptly recurred when that control has been relaxed. You are probably aware that with as many as one-third of the cases of chorea the rheumatic diathesis is associated, and this, I need not tell you, is a constitutional vice whose roots spring from the soil of imperfect metabolism. As to hysteria and melancholia, how few examples of these do we encounter with which more or less dyspepsia and obstinate constipation are not closely identified! Since they are, therefore, merely manifestations of impaired nutrition, none of these antecedent family neuroses need be regarded as being of any great confirmatory value to the neurotic theory of the origin of hay fever.

A final sociological fact that is urged in support of the neurotic habit, is the very noticeable limitation of hay fever to members of the upper classes, those among whom it is conceded that the various diseases of the nervous system are of most frequent occurrence. In those countries where class distinctions are marked with a certain degree of clearness, this observation has, perhaps, some application. In this democracy of ours, however, where the leisure class is as yet insignificant in numbers, where almost all the men and a rapidly increasing number of women, are daily engaged in some form of employment, the statement requires modification. Abroad, the disease is found, I do not say exclusively, but chiefly among those who are either wholly idle or whose main pursuit is that of some enervating form of pleasure, while at home we are almost able to classify it in a liberal sense as an occupation neurosis, since it affects almost exclusively the brain-workers and those who follow confined and sedentary employments, in contradistinction to those who earn their livelihood in

the open air or through actual bodily toil. The manifestations of nervous disorder for which these people are apt, sooner or later, to consult their medical attendants, have almost invariably been preceded for many months by evidences of impairment of the general health, and for the explanation of this the physician rightly and confidently turns to his patient's occupation and the conditions unfavorable to vigorous health which attach to it; or, in the case of a woman, to her domestic affairs, the confinement they necessitate, and the countless worries and vexations that are almost certain to be found in association with them. It is singular, however, that if one of this same class of subjects comes to him with an attack of hay fever, he grows suddenly short-sighted, fails to perceive that the nervous element in the disturbance is limited to an irritable and enfeebled state of the vaso-inhibitory centres, and finds an all-sufficient constitutional cause for the outbreak in a mythical "neurotic habit." Content with this, he seeks no further. All other pathological possibilities are subordinated to it, and so, in the matter of general therapeutics, it is to this fancied temperamental taint that the lion's share of treatment is given. It is this that makes this theory so objectionable, that renders the treatment based upon it so ineffective and so discouraging. It leads one to engage in a futile conflict with what is no more than a symptomatic shadow, while the pathogenic substance remains unmolested because unrecognized. This substance, you will remember, I have advised you to seek in the gastro-intestinal canal. And at the commencement of our search let me add a word concerning those people from among whom the ranks of the hay fever army are recruited. I have already said that antedating by a considerable period the various nerve disturbances by which most of them are in time pretty sure to be afflicted, are impairments or perversions of the assimilative and excretory processes, or, in a word, of normal metabolism. Do you ask me why? Are not these the men who eat hurriedly, irregularly, injudiciously? Is it not among these that such habits, together with lack of exercise and pure air, inevitably lead to an enfeebled circulation, glandular inactivity, embarrassed digestion, constipation, intestinal putrefaction, auto-toxemia? At the very moment that contamination of the blood stream occurs is inaugurated an increasing irritation and steadily-diminishing stability of the reflex nervous centres, this being the first step in the process of which such troubles as hay fever and asthma are the last. The vasomotor centres are early affected, and when their loss of equilibrium is added to a long precedent nasal lesion that has rendered the pituitary mucous membrane particularly intolerant of any form of irritant, we have but to await the floating of some variety of pollen into the

nostrils to witness the speedy evolution of the disease we are discussing.

You will, no doubt, have anticipated my statement that the contamination of the blood current is effected by the production within the intestines, through fermentative and putrefactive processes, of a number of noxious ptomaines that are taken up by the absorbents and introduced into the circulation. In frequent association with these and competing with them in maleficent action, is uric acid. Names commonly applied to this blood dyscrasia are lithemia, uric-acidemia, and the gouty or rheumatic diathesis. Such, however, indicate but a fragment of the whole truth. They limit responsibility for all the ill effects, subjective and objective, to uric acid. Now, guilty as this body undoubtedly is, when in excess, for much suffering and many disturbances of function, yet it has been made to bear in addition to its own the sins of several of its companions in mischief. The departure from normal metabolism which has for one of its ultimate effects hay fever, involves much more than merely an over-production or an under-elimination of uric acid. Although this is, perhaps, one of the most active of several different agents contributing to this end, yet the others are by no means to be ignored if you would attain success in treatment. Before discussing the matter of treatment, however, let us get a clear idea of the developmental stages of this predisposing systemic condition, from the comparative harmlessness of its early beginnings to the time when it exerts so powerful a disturbing influence upon functional activities, that the general health is seriously compromised. We know that impairment of the digestive and nutritive processes is almost invariably the first downward step towards a general state of lowered vitality. At first gastric, it soon involves the whole gastro-intestinal tract. The several causes for this primary fault have already been enumerated in speaking of those who are most commonly affected by hay fever. How slight a protection, by the way, do the superior intelligence and supposedly higher culture of the upper classes afford them from daily violations of the most vital laws of personal hygiene! The men seem as contemptuous of Nature's commandments as though they believed themselves immune against her inevitable retribution, while the women are forever devising new methods by which they may sacrifice their health at the insatiable shrine of fashion. I need scarcely say that among these misguided souls, I do not include the woman who is self-supporting through some wholesome form of employment, nor the mother who eludes worry and discontent by a salutary devotion to her children and her home, nor yet those most recent and rather startling products of female evolution,—the athletic girl and the masculine woman. It

is in none of these that you will be apt to find weakened digestion and gastro-intestinal catarrh, nor any of the diseases of which these are the forerunners. It would be difficult and, indeed, of little practical advantage to ascribe to any one particular *type* of individual a special susceptibility to hay fever. The exceptions would be bewildering in their frequency, and, instead of proving the rule, would probably lead to its being wholly discredited. Although I believe myself that uric acid is almost invariably present in excess in the subjects of this malady, yet it is quite possible that other manifestations of its presence than hay fever may be too few and vague to justify their classification among those of the lithemic or gouty diathesis. It will tend more to our enlightenment, I think, if we familiarize ourselves with the peculiarities of these people, not so much with reference to matters of temperament as to those of environment, personal habits, and daily pursuits. The larger number of them, as has already been intimated, are possessed of more than ordinary intelligence; they are people in whom, as a frequent occurrence, brain has been developed at the expense of brawn, the men being, as a rule, spare and wiry rather than broad and robust. Among your women patients, on the other hand, you will meet a number who look well-nourished and even corpulent, but whose appearance of health is deceptive, and an examination of whose blood will often reveal some degree of leukemia and a deficiency of hemoglobin. They are almost invariably of a constipated habit, and many of them consume a quantity of nitrogenous food out of all proportion to their needs or to the ability of their eliminative organs to dispose of; and when to these two factors you add either habitual indolence or enforced inactivity for a third, you have a triple alliance that can work an infinite amount of mischief. It is inevitable that such a combination will sooner or later evolve one or more of the symptoms that encourage the belief in a neurotic habit. Finally, in reference to the daily pursuits of these patients, the men are hard, tireless workers, absorbed in their professional or business interests, magnifying the seriousness of trifling reverses and allowing themselves no time for rest or gratification when they have gained some coveted honor or achieved something brilliant in their special field of labor. They keep their "nerves," to use a popular expression, always over-tense, denying them both needed repose and proper nourishment. The follies of the other sex differ only in kind. Instead of being the victims of overwork or of some exhausting mental strain, their neurotic symptoms proceed more often from the lack of even a wholesome amount of these things. They are eternally thinking of themselves and indulging in an endless variety of vain longings or unavailing regrets. They are, of

course, emotional. They are easily depressed, easily elated. Men and women alike are pretty sure to be irritable, quick-tempered, impulsive; but why, in the name of all that is pathologically logical, should they be said to be of the neurotic habit? The child that has a reflex convulsive seizure as the result of an acute indigestion, is not necessarily neurotic; yet the vasomotor perturbation of the hay fever patient is dependent upon a gastro-intestinal disturbance that differs from that of the child mainly in point of chronicity.

If, now, gentlemen, you are disposed to agree with me regarding the pathogenesis of this constitutional factor, we shall have no difficulty in agreeing upon a consistent plan of treatment, both prophylactic and curative. The former, it goes without saying, will be largely hygienic. To dispense with detail, we need but to recognize the fact that while considerations of clothing and bathing are highly important, those of diet and exercise are paramount. If you believe, as I do, that the gastro-intestinal tract is the birthplace of the general dyscrasia that plays so active a part in the causation of hay fever, it is the thorough sanitation of this tube that we must regard as the first step towards the restitution of nerve stability and vaso-inhibitive power. This canal is, in a way, a veritable Pandora's Box, there being, once it is opened to injurious articles of food or drink, scarcely a limit to the number of evils that may spring from it. You must, therefore, at the outset, insist that your patient shall rigidly deny himself everything of an objectionable nature. You will put him upon honor to carry out your dietetic instructions to the very letter, and you need not be afraid of making these too minute. Having acquainted yourself with the special form of digestive derangement present, whether it be gastric or intestinal, peptic or pancreatic, you will prescribe such articles of food as will be least likely to bear too heavily upon the weak link in the digestive chain, and so to contribute to the excess of decomposition products already occupying the bowel. I am opposed to the exhibition of the artificially-prepared digestive ferments, for I believe that intelligent supervision and the careful adaptation to one another of food and exercise, renders such aids unnecessary, and tends to restore normal functional energy much more naturally and certainly. The various intestinal antiseptics and disinfectants, however, are distinctly helpful, and may be used until such time as that there is no longer need for them. The coming of this time marks the dawn of improved nutrition in your patient, the restoration to his blood not only of its normal corpuscular proportion and power, but, further than this, the disappearance from it of those self-produced poisons the effects of which have been seen in perversions or an actual sus-

pension of nervous function. If no organic impediment exists, a rise in general vigor is sure though slow, and I can find no sufficient reason for the administration of one or more of a long list of nerve-tonics that add nothing to the completeness of the result and subtract nothing from the time required to accomplish it. To my mind, indeed, these have the prohibitive objection that they afford the patient a ready means of escaping censure for his own want of vigilance or lack of self-denial. He is almost certain to rely too much upon the drugs you give and too little upon the co-operation that you have demanded from him. And when, as a result of his frequent falls from hygienic grace, his improvement is delayed, he audaciously blames not his own frailty, but the worthlessness of your prescribed remedies.

As to the treatment of the attack itself, this will be general and local, and reserving the latter for subsequent discussion, a few words will dispose of the former. If, within the first few days of the attack, the intestinal tract being thoroughly emptied and disinfected, the patient is reduced to very little more than a milk diet, a week of such abstemiousness will witness a decided amelioration of the more distressing symptoms of the disease. By purifying the source whence it derives all its supplies, it becomes a simple question of time when the blood, receiving no further accessions of a harmful nature, rids itself of those already within it, and ceases to be the medium through which the vasomotor centres have hitherto been irritated and rendered partially impotent. Quickly recovering their wonted powers, these centres re-establish normal vascular tension, and all the local morbid phenomena constituting the clinical picture of hay fever come to an end.

LAWS GOVERNING MEDICAL PRACTICE IN PENNSYLVANIA.

By W. D. Hamaker, M.D.,

Meadville, Pa.,

Member Pennsylvania State Board of Medical Examiners.

Pennsylvania has had three special laws regulating medical practice, the laws of 1877, 1881, and 1893. There is at present a lack of knowledge among the profession in regard to the law of 1893, and many think that the act of 1893 entirely repeals the other acts. The object of the present article is to give a synopsis of the law of 1893, and to discuss the parts of the law of 1877 which are still in force.

The law of 1893 has been in force since June, 1894, and has for its main object the examination of all who wish to begin the practice of medicine and surgery in Pennsylvania.

This law establishes a medical council, composed of the lieutenant-governor, the attorney-general, the secretary of internal affairs, the superintendent of public instruction, the president of the State Board of Health, and the presidents of the three State Boards of Medical Examiners.

The council issues all licenses to practise, and all candidates for examination and license write to the secretary of the council at Harrisburg, presenting their credentials, and receive permission from him to appear before one of the State Boards of Examiners.

The applicant must present a written application for license, enclosing a fee of $25.00, together with satisfactory proof that he is over 21 years old, is of good moral character, has obtained a competent common school education, has a diploma from a legally incorporated medical college, and has studied medicine for four years, including three regular courses of lectures in different years in a medical college.

The council then issues an order for the applicant to appear before the Examining Board which he may elect. If the applicant fail to pass, he can appear at any future examination, and for his second examination does not pay an additional fee if he take it within two years. He may undergo an examination every six months if he wishes.

Physicians licensed by boards of other States are licensed in Pennsylvania, on filing their licenses, duly certified, together with proper affidavits showing standards of the other States to be equal to that of Pennsylvania.

When the applicant receives his order from the Medical Council he appears before one of the three State Examining Boards at the June or the December meeting. The three examining boards are appointed by the governor from the certified lists of members of the Medical Society of the State of Pennsylvania, the Homœopathic State Society, and the Eclectic State Society. Each board consists of seven members, and each member serves for three years, and must be a registered physician in good standing, and shall have practised at least ten years.

Said boards are authorized to take testimony in all matters within their jurisdiction, and the presiding officers of the boards or of any committees may issue subpenas and administer oaths to witnesses.

Two or more examinations may be held each year (time and place

determined by board). The examinations are in anatomy, physiology, hygiene, chemistry, surgery, obstetrics, pathology, diagnosis, therapeutics, practice of medicine, and materia medica; the questions in therapeutics, practice, and materia medica shall be in harmony with the teachings of the candidate's school of practice. The examinations are in writing. The papers, after having been examined and marked by the boards are placed on file at Harrisburg for five years, subject to public inspection.

After having received a license to practise the candidate shall exhibit the license to the prothonotary "of the county in which he or she desires to practise," whereupon he or she, upon the payment of $1, shall be entitled to be registered. A violation of any of the provisions of this act shall be punished by a fine of not more than $500 for each offence.

Medical officers of the army and navy, marine hospital, and railroad relief departments, internes of hospitals, dentists, druggists, and instrument-makers are exempted.

Physicians of other States can come into the State in consultation with Pennsylvania physicians, and physicians just across the line in other States whose practice extends over into Pennsylvania, can attend their patients, but must not have an office or place to meet patients in this State.

Practitioners duly registered before March 1, 1894, shall not be interfered with; "and one such registry shall be sufficient warrant to practise medicine and surgery in any county in this commonwealth."

The law of 1881 was practically repealed by the law of 1893, but part of the law of 1877 is still in force, according to the opinion of Attorney-General McCormick, and according to the decision of the Supreme Court in the case carried up from Bradford County in 1892, in which the court held that the law of 1881 did not entirely repeal the law of 1877. It is not hard to tell what the decision of the court would be if a similar case were carried up under the law of 1893, as this law does not repeal the law of 1877 any more than did the law of 1881. The law of 1877 relates in part to itinerant or transient physicians, and requires that any physician (otherwise legally qualified) who opens "a transient office within the commonwealth or by handbill or other form of written or printed advertisement, assigning such transient office or other place to persons seeking medical or surgical advice, or prescribing or itinerating from place to place or from house to house, and proposing to cure any person sick or afflicted by the use of medicine, means, or agency whatsoever, for valuable consideration," shall take out a license from the clerk of courts of the county

in which he wishes to practise, for one year, for which he shall pay a license fee of $50 to the county treasurer and a registration fee of $5 to the clerk of courts. The fine for violation of this law is from $200 to $400.

This law has excited some interest lately, from the fact that a number of physicians (itinerants), who were registered in some county under the act of 1881, have claimed the right to practise as itinerants under Section 15 of the law of 1893, which says that "one such registry" (*i.e.*, under the law of 1881) "shall be sufficient warrant to practise medicine and surgery in any county in this commonwealth."

It is clearly established, then, that registration under act of 1881 ceased with the adoption of the law of 1893; that a licensee under the act of 1893 must register in every county in which he may practise; that the physician who registered under act of 1881 is not required to register in every county in which he may practise, and that in addition to being registered under act of 1881 or 1893, a sojourner or itinerant practitioner must comply with the law of 1877. Under the law of 1877 it is not allowable for a physician to open a temporary or transient office even in his own county without taking out an itinerant's license. (See decision of Supreme Court in case of Moore *vs.* Bradford Co., 148 Pa., 1892.)

STUDIES ON THE PATHOLOGICAL ANATOMY AND THE DIFFERENTIAL DIAGNOSIS OF LEPRA.[1]

By W. Havelburg, M.D.,

Rio de Janeiro, Brazil,

Director of the Bacteriological Laboratory Hospital dos Lazaros.

(Concluded from page 723.)

Let us pass now, led on by the hand of the anatomical studies we have made, to the study of the symptoms which we have had occasion to observe in relation to the nervous system. In order to understand well what we are going to say, one must bear in mind, first, that the various kinds of sensibility, as tact, pain, temperature, etc., are transmitted by special fibrillæ; secondly, that the fibrillæ, intrusted with the vasomotor, trophic, and secretive functions, course conjointly with the nerves of the sanguine vessels.

[1] Estudos sobre a anatomia pathologica e o diagnostico differencial da Lepra Nervosa Relatorio apresentado pelo Dr. W. Havelburg, ao Illm. Sr. Julio Cesar, de Oliveira Provedor do Hospital dos Lazaros em 1895. Translated and contributed to the University Medical Magazine by Albert S. Ashmead, M.D., New York.

Now, after all that we have said, we are able to explain how the skin-modifications produced by leprous infection, and the products of neoformations, can modify the sensibility in its different varieties, and also the vasomotor, trophic, and secretive functions. Is there, in these circumstances, no participation of the sanguine vessels?

At first there is hardly an irritative process of the tissues which produces little alteration in the sensibility; later on, however, when the process accentuates itself, there is a complete suspension of the sensibility in all its forms, by the destruction, to a certain extent, of the conducting threads. A more detailed description of the perturbances resulting from this cause would lead us too far, and would compel us to give the symptomatology of lepra. The alterations, vasomotor, trophic, sensitive, and secretive, are found in all their stages in leprosy. In the anatomical part we have already declared that the nervous manifestation of the leper skin is not a special morbid entity, depending hardly on the degree of propagation of the disease to the nervous terminations.

Independent of the limits of a nerve, there is observed the formation and extension of spots. These manifestations are independent, also, of the nervous ramifications, because, instead of limiting themselves to the region of the affected ramifications, they extend to the boundary of the non-affected ramifications.

The anesthetic zones are scattered in a straggling, asymmetric manner, and are often bounded by a vermilion line, somewhat salient, produced by the multiple penetration of the bacilli and their irritating action. The neighboring organs may suffer by an action of contact, but they may also suffer by the diminution of innervation; thus are explained the affections of the periosteum, of the bones, of the fingers, etc. Many of the great ulcerations of the lepers are produced by traumatism of the anesthetic regions. In advanced cases, the different processes of alteration may combine, and many times the leprous tubercles and infiltrations may, after some time, disappear by the propagation of the disease to the nervous element, being replaced by a delicate skin, or, finally there may appear an anesthetic spot in an atrophic skin. In consequence of so many influencing factors the variations also are many.

From all we have observed, we conclude that the appearance of an anesthetic spot indicates the anterior existence of a tubercle, or some other leprous manifestation in that point or other, just as there is no case of tuberculous leprosy of a certain extension in which a nervous alteration is not observed, thus also there is no case of exclusively nervous lepra in which, at some stage of the disease, there has not been a leprous focus of the skin which was atrophied

subsequently. It is sometimes observed that the appearance of a leprous manifestation, in whatever part of the body, is followed, after some time, by the appearance of leprous neurites in other parts, and that, as we observe in various nervous diseases, they produce vaso-motor, trophic, sensitive, and secretive perturbations. These cases may be explained sometimes by the existence of descendent neuritis; in other cases, however, we must be most reserved in our explanations.

It is a curious fact that sometimes a well-pronounced alteration is observed in the nervous trunk, and at the same time the peripheric symptoms are comparatively insignificant, and *vice versa.*

If we examine a leper we find the different modes of sensibility altered; these alterations are subject to changes in plus or minus; but the modification which is produced in one mode of sensibility is produced at the same time and in the same manner in all the others; never is there observed in lepra partial paralysis,—that is, in relation, for instance, to pain and to temperature, the other sensations remaining intact. These modifications of sensibility are one proof more that in lepra the nervous alterations depend on the ramifications or on the nervous trunk altered as we have said before. In the ramifications and in the trunk, the conductor nervous fibres of the different modes of sensibility are still united, after, however, they have passed from the posterior radices to enter into the spinal cord, they separate. Consequently, a partial paralysis of the sensibility would be negative of the existence of peripheric lesions; the simultaneous alteration of the various modes of sensibility speaks for a disease in the nervous trunk or in the peripheric ramifications.

The alterations in the motor nervous system will be the object of other studies and investigations.

We have said enough now of these leprous alterations; let us now succinctly examine some diseases which present symptoms simulating leprous manifestations, and which for a long time were assimilated to lepra. Our knowledge of these diseases is based upon very modern studies.

We shall speak first of some diseases the causes of which are dependent on the spinal cord, and we shall choose for a type the pathological anatomy of syringomyelia, which is the best known.

We have here a destruction of gliomatous masses, which develop in the spinal cord, forming cavities, which may either exist independently or extend to the central canal, with which they confound themselves. It is generally the cervical part of the medulla that is attacked, and, as these cavities may occupy the gray and white matter, there result a variety of symptoms.

Generally the process is localized in the posterior commissure, in the posterior horns (pontas?), and pre-eminently in Clark's columns, and in the lateral intermediate tract; but sometimes it extends to the posterior columns, rarely we find also destroyed groups of cells of the anterior horns (pontas?), which produces amytrophic paralyses; finally, the process may extend itself either to the sides in the lateral horns (pontas?) and in the lateral columns of the pyramids, or at the top even to the medulla oblongata.

We must not forget, under the physiological point of view, that the posterior horns (pontas?), especially the columns of Clark, and the solitary ganglions govern the different sensations, especially that of pain and that of temperature; that the lateral horns and the intermediate lateral tract, which has its largest development in the dorsal medulla, and diminishes in volume as it ascends, uniting at the top in the cervical medulla with the anterior horns, exercise vasomotor and secretive functions, but are especially sudoriparous, and that the posterior columns govern the sensations of tact and the muscular sense.

In the different diseases of which we are going to speak, we find various trophic perturbations of the skin, the bones, the articulations, and, besides, a secondary degeneration of the nerves.

In studying the numerous *anatomo-pathological* modifications of syringomyelia we find a great variety of symptoms, but the most striking is in the upper limbs the disturbance of sensibility to temperature and pain; a thermo-anesthesia and analgesia, although the sensibility to touch and the muscular sense are preserved or altered only at a later period. The analgesia and thermo-anesthetic zones extend in large areas, bounded by regular lines, and often it is possible to diagnose by localization, which segments of the spinal cord are altered. In the skin and in the deeper tissues trophic alterations, vasomotor and secretive alteration, are formed, giving as a result the formations of vesicles, urticarial patches, decubital necroses, chaps on the hands, whitlow, phlegmas, vicious conformations, hypertrophies, or swelling of the hands, atrophies of the finger-tips, tumefaction in the articulations, alterations of the nails, etc., or the alterations depending in great part on traumatisms acting upon anesthetic surfaces; there is then a symptomatic picture much resembling that of lepra mutilans. However, combining the partial paralyses of sensibility mentioned with the symptoms resulting little by little from the alteration of this or that part of the medulla, and which suggest tabes or progressive muscular atrophy of the Duchenne-Aran type, one may sometimes, and after a time, make the diagnosis of syringomyelia.

To show the difficulty of the diagnosis, we shall record that in

1867 Steudener published a case of lepra mutilans, and in 1875 Langhans published one of lepra anesthetica, in which both cases were found anatomical lesions, which, though at a later time, Schultze proved to be due not to lepra but to syringomyelia. This is only one of many cases registered by science.

In the year 1886 Morvan described a special complex of symptoms,—pareso-analgesia of the extremities. At first this symptomatic complex, which was soon known by the name of Morvan's disease, was considered as a special disease; after some time, however, that opinion began to be challenged, several authors having shown that of numerous cases represented as Morvan's disease, some were so, others were nothing else but lepra nervosa, as we have already said. On the other hand, Joffroy and Achard, making anatomo-pathological studies in cases of the so-called Morvan's disease, found a gliomatosis in the spinal cord, and syringomyelia in the cervical, with consecutive alterations up to the medulla oblongata, and peripheric neurites in the median and cubital nerves. Morvan's disease ceased, then, to be a special morbid entity, and has been considered since as a variety of syringomyelia.

The disease begins always in the hand and the fingers of one side, it passes then to the other side, but seldom to the inferior members.

The superior members remain paretic and insensible, becoming at the same time the seat of various nutritious alterations, under the form of chaps, ulcers, whitlows, abnormal fragility of the bones, with necrotic fragments, hyperhydrosis, etc.

The alteration of sensibility, characterized by analgesia and thermo-anesthesia, is always more accentuated than the paresis; the nutritive alterations of the muscles are insignificant.

We may conclude that in Morvan's disease the posterior and lateral horns, and the intermediate lateral tract are alone altered. The difference between the symptoms of syringomyelia and Morvan's disease, although the alteration of the cord seems to be the same in both diseases, may be explained, with Eulenburg, by admitting that in syringomyelia we have degeneration in points of the medulla, causing the definitive suspension of the function of the nerves which originate there; while in Morvan's disease we have dynamic or functional alterations, as it were, a weakening of the ganglionic system, or an individual congenitally weak.

A great analogy seems to exist between these diseases and the symptomatic complex described by Grasset and Rauzier in 1890, under the title of *Analgesia, Thermo-Anesthesia, and Vasomotor and Secretive Perturbations, under the Form of Increasing Secretion of Sweat and of the Local Temperature in Anesthetic Areas.*

Erythromelalgia was described for the first time by Graves, in 1843, and again by Weir Mitchell in 1872 and 1878, the predisposing causes being supposed to be,—action of the cold or extraordinary strains on the limbs, and especially previous debility, like nervosism, and a neurasthenic predisposition. In the beginning there was burning internal pain, especially in the extremities of the inferior members, a few times of the upper members, or of all four together, accompanied with exaggerated sensibility and followed by turgescence; the pain increases by palpation, and is characteristically relieved by cold.

The pains appear periodically, increasing and disappearing completely for some time; the color of the skin is sometimes dark vermilion, sometimes bluish vermilion; and the veins become turgid and very visible; the affected parts are warm to the touch, presenting, in comparison with the other side, a difference or temperature which varies from 2° to 9° C.

Exceptionally are also affected the face, the lips, and the tongue; the patient perspires easily. Relatively to other nutritive alterations there is found an augmentation of the volume of the articulations, verrucose form of tubercles, alteration of the nails, finally, leper-like symptoms. Up to this time there exist no anatomical studies on this disease.

Eulenburg does not consider the erythromelalgia as an independent disease, but as a symptom of central and intermedullar origin.

In his cases he observed at the same time the juvenile form of muscular dystrophy, grave diseases, chronic and progressive of the brain, congestive states, and apoplectiform attacks.

Erythromelalgia belongs in any case to those groups of neuroses which are characterized by vasomotor symptoms (dependent or independent neuroses); these groups are divided into: (1) *The angio-paralytic form*, and to this the erythromelalgia must belong; (2) *the akro-paresthesic form*, a neurosis attacking principally the members in special professions, and in cases of nervous exhaustion, and which produce alterations of sensibility, without vascular symptoms; consequently, we have before us a kind of professional neurosis, affecting the sensibility and comparable to certain paresis, also professional, although of motor nature; (3) *the angio-spasmodic form*, to which belong the spontaneous symmetrical gangrene and the disease Reynaud.

In our description of the nervous symptoms in lepra we have mentioned the vasomotor perturbations, which depend directly or indirectly on the skin alterations produced by the leprous bacilli; in the forms of the disease just described we have the results of central

perturbations, produced by causes very often unknown. Thus it may be understood that a certain analogy of symptoms may exist, to a greater or smaller degree, although produced by quite different causes.

We mention these forms here, having our eye only on cases of lepra in which the cutaneous symptoms are few and the nervous symptoms very accentuated, and of these we must be mindful for the diagnosis. The same motives induce us to mention the alterations in the trophic innervation, which, as is well known, is more a clinical hypothesis than a physiological fact. We shall begin with *sclero-derma*, the most important from our point of view.

The skin is as hard as wood, of an almost cadaveric coldness, and pushed back over the articulations, thus giving to the fingers different deformities, presenting a smooth, livid or blue aspect, even in some places pigmented with yellowish châtain; it allows no formation of wrinkles and leaves no dent after pressure.

The diffuse sclerema of the face can be recognized at the beginning by a peculiar spasmodic tension, and at the same time an immobility of the physiognomy; in the sclerema of the hands the deformity is very pronounced from the beginning. To the characteristic deformities of the fingers are added by and by the thickening of the bones, the tuberculous and painful swelling of the bones of the phalanges and of the articular extremities.

Later on this alteration is modified, the skin becomes delicate, parchment-like; in the fingers the contracture of the flexor muscles is preserved either in all or only in some. A frequent symptom is the predisposition to ulcerations and gangrene, diseased nails, and panaris. This sclerodactylia, also called cicatrizing sclerema of the fingers, or nervous panaris, reminds us of the analogous symptoms of syringomyelia, of Morvan's disease, erythromelalgia, etc., and more than all of lepra mutilans. There exists also a *sclerodactylia annularis ainhumoides*, characterized by annular strangulation or spontaneous amputation of the phalanges, very like the *ainhum*, endemic among the negroes of Africa.

Scleroderma, manifesting itself in one point only or in many places more or less distant, does not produce even in its highest degree of development any alteration of sensibility; and when it produces it it is quite insignificant; on the contrary, there exists some times a certain hyperesthesia, especially in the sensibility to the electric current,—faradic or galvanic. Eulenburg never observed a special diminution of sensibility of touch, place, and heat; he observed that in the diffuse sclerema in an advanced stage the resistance to the galvanic current was much increased, and contrary to the

generally adopted opinion he maintained that this is not due to the diminution or suppression of the secretion of sweat, inasmuch as he met with the same resistance in cases where the perspiration was copious and profuse.

Both anomalies of the sudoriparous secretion, anhydrosis, and hyperhydrosis may take place. There have also been observed muscular atrophies, not only limited to the parts affected by the sclerema, but also in places no way affected.

There are no anatomico-pathological facts pointing to a nervous foundation; nevertheless, Eulenburg and others consider scleroderma as a trophoneurosis. There are strong connections with other trophoneuroses, for instance, elephantiasis, whose common element is a lymphatic congestion in the skin and in the subcutaneous tissue; but in scleroderma there exists in addition the special form of hardening of the tissue with tendency to wrinkling. As dependent on nervous influence,—that is, on perturbation of the trophic innervation,—there appear frequently hypertrophies, atrophies, dystrophies, and paratrophies, not only of the cutaneous formations, but also of the subjacent parts, muscles, bones, and articulations.

We must mention at the same time hemiatrophia progressiva facialis, which very often proceeds by sclerodermatous spots on the chin, temples, cheeks, and submental region, which by and by differentiate themselves readily from the environment which seems normal, by the atrophy of the skin, the maroon pigmentation or marmorial discoloration.

The dermatologists, however, who claim that scleroderma belongs to their own specialty, assume as cause a disease of vessels, produced by extreme temperature, principally cold. Lassar considers scleroderma as a disease characterized by a wrinkling, perfectly local, of the skin, combined with two processes entirely different: a progressive infiltration which may be followed step by step in the periphery of the focuses, and immediately afterwards, by the diminution of the tissues and their wrinkling.

General perturbations of nutrition may also be observed in combination with scleroderma, as, for instance, divers difficulties of digestion, the impoverishment, often rapid, of the strength and of the weight of the body, and a psychical alteration amounting even sometimes to deep melancholy.

From the general form detaches itself the partial sclerema which appears in some parts of the body in the form of yellow or white spots, extremely smooth, and without elasticity.

It is often very difficult to find the boundary between scleroderma and leprosy; even in the literature the cases of partial sclerema,

of circumscript sclerema, of dermosclerosis in patches, and of what is called *local morphea,* were often taken one for the other. Formerly, the cases of lepra, with local symptoms little pronounced, and with important nervous alterations, with thickened and spotted skin, were called morphea, a name which now it will be better to drop.

In our hospital we have a really classical case of scleroderma, which has served for a long time for our observations. The cheeks and the submaxillary regions are as hard as wood, the pigment on both sides of the nose has disappeared in a certain direction, leaving the form of butterfly wings, which makes a striking impression compared with the generally dark color of the body; but in the parts without pigment, the sensibility is preserved; in the dividing line I have extirpated small fragments of the skin and I looked for the bacilli of leprosy, but always in vain, in spite of repeated examinations.

As a criterion more or less absolute, we may decide that when these spots remain anesthetic the case has nothing to do with scleroderma, but rather with other diseases, especially lepra; however, as we have said, it is not possible to make an unattackable diagnosis without the presence of the bacillus on the affected point or any other.

Of other trophoneuroses, which may sometimes show symptoms reminding us of leprosy, we shall mention *glossy skin* of the English authors, in which the skin shows a peculiar atrophy, glossy and smooth, especially after a peripheral nervous lesion; the *anomalies of the pigment,* under the form of *vitiligo,* in which there are places without pigment, sometimes after strong neuralgias, or *augmentation* of pigment as is observed in the *malady of Addison,* and in the *nævi of the nerves;* and, finally, *myxedema* and the *akromegalia,* two very interesting alterations which have just been studied by eminent pathologists, and repeatedly described in monographs. It is enough to mention them.

In this article we ought to have spoken of the Cagots, inhabitants of certain valleys of France, where there exists endemically a typical disease of deformation of the nails, ulcerations, panaris, etc., which is considered as a benign form of lepra, attenuated by long heredity; but we lack exact information.

We wind up by pointing out once more the necessity of comparing these various diseases with lepra, especially in the places where the latter is common, and in which by the side of perfectly characterized cases, we may observe others benign and disguised or abortive. This is not only of great scientific value, but also of much practical importance.

ALUMNI NOTES.

The Annual Commencement.

The One Hundred and Twenty-second Annual Commencement of the Department of Medicine was held in the American Academy of Music, Philadelphia, on Thursday, June 11, 1896. The degree of Doctor of Medicine was conferred upon eighty-eight candidates. Prizes were awarded as follows:

The alumni medal, with an accompanying purse of $50, to the member of the graduating class who attains the highest general average in examination, to Edwin Zugsmith.

The prize of a Thoma-Zeiss blood-corpuscle counting apparatus and a Fleischl hemometer, offered by the professor of clinical medicine for the best report of his clinics during the session of 1895–96, to Edwin Zugsmith, with honorable mention of the report of George W. Colby, Jr.

The prize of a copy of Treves's "Operative Surgery," offered by the professor of clinical surgery to one member of each of the four surgical ward class sections for reports of that service, to Edwin Zugsmith.

The prize of a surgical pocket-case, offered by the professor of clinical surgery for the best report of his clinics during the session, to Francis D. Patterson.

The prize of an antiseptic minor operating case, offered by the clinical professor of orthopedic surgery for the best practical work in orthopedic surgery, or for the best report of his clinic, or for an acceptable original design in apparatus, to Charles A. Gundy.

The prize of a copy of Treves's "Operative Surgery," offered by the clinical professor of genito-urinary diseases for the best thesis on a clinical study of cases, to Francis D. Patterson.

The two prizes offered by the demonstrator of surgery were awarded as follaws: A surgical pocket-case for proficiency in fracture dressings and in operative surgery, to Robert N. Willson, Jr., with honorable mention to Ben C. Gile and Jesse H. Allen. A surgical pocket-case to George W. Norris, of the first year class, for proficiency in bandaging, with honorable mention of William S. Crosby and W. Worman Livingood.

The prize of a copy of Ashhurst's "Surgery," offered by the demonstrator of osteology to the member of the first year class who passes the best examination in osteology, to Andrew H. Woods, with honorable mention of Charles L. Seitz and Martin J. Cooley, Jr.

The prize of a case of autopsy instruments, offered by the demonstrator of morbid anatomy for the best report of his autopsies, to Clarence W. Wille.

The prize of a hemocytometer, offered by the lecturer on physical diagnosis to the member of the first year class who presents the best report of his lectures on physical diagnosis, to John H. Lindsay, with honorable mention of Martin J. Cooley, Jr., and George W. Norris.

The prize of an axis-traction obstetrical forceps, offered by the Barton Cooke

Hirst Obstetrical Society to the member of the graduating class who passes the best examination in operative obstetrics, to Harry H. Brown.

Meeting of the General Alumni Society of the University of Pennsylvania.

The first annual dinner of the General Alumni Society of the University of Pennsylvania was given in the library on Wednesday afternoon, June 10, 1896.

The centre of the large library building had been cleared of the study-tables and bookcases, and in their stead eleven long tables extended lengthwise of the room. Plates were laid for 250 members and invited guests, and fully that many were present. At the upper end of the room was a large portrait of John H. Towne, in whose honor the Towne Scientific School of the College Department was named, and whose benefactions have greatly aided the University.

Seated about the tables, according to their classes, were many graduates of the University who have won fame and fortune since they left college. In the centre of the room was the table for the guests of honor, and seated around it were Dr. William Pepper, president of the General Alumni Society, Robert Davidson, a member of the graduating class of '26, and the oldest alumnus present, Provost Charles C. Harrison, District-Attorney George S. Graham, Dr. G. P. Fisher, of Yale, Hon. M. Russell Thayer, and A. P. Burgwin, of Pittsburg. Governor Hastings and Mayor Warwick were unable to be present.

High above the heads of the assembled guests, and painted on one of the colored windows, was this inscription: "Peace is here or nowhere." It illustrated most appropriately the feeling that existed among those present.

Growth and Needs of the University.—At the close of the repast, Dr. William Pepper, acting as toast-master, introduced Provost Harrison, who referred to the growth of the University during the past year, mentioning the buildings that had been erected, the adding of over 50,000 volumes to the library, and the changes that had been made in the departments. He also spoke of the relation existing between the University and the city.

Continuing, the Provost said, "The present needs of the University are great. There are none here to-day, who have the welfare of this institution at heart, that cannot help us. Some of you could take up some individual line of work, such as procuring of funds for the new Memorial Hall, which we hope to erect shortly and for which plans have already been made.

"There are many ways in which you alumni can help the University. You can be parts of and makers of that which will last as long as the nation itself. You have helped us, and I want to say now that I have always felt the need of relying upon you. We have recently secured and will shortly have on exhibition the corner-stones of the first buildings of the University, erected by the State of Pennsylvania as a mansion for the President of the United States. One of the inscriptions on these stones says that the buildings were erected when Pennsylvania (referring to the State) was out of debt. We now want you to help us in getting out of debt, for we are in debt, inasmuch as we have to meet many obligations the coming year that are to tax us greatly."

Sister Universities.—Dr. Pepper stated that one of the troubles of the University in the past was its backwardness in making known its needs. Now that these are so pressing we must come forward and ask your assistance. He then introduced Dr. G. P. Fisher, of Yale, who responded to the toast, "Our Sister

Universities." In referring to Harvard and Yale he said that neither was known for its humility. When they are in need of assistance they ask for it. Dr. Fisher then read from the diary of Professor Silliman, who has done so much for Yale University, written in Philadelphia in 1802–1803, showing that it was to the University of Pennsylvania that Yale owes the first training in the education of this great man. Dr. Fisher went on to say,—

"I have been thinking recently, quite seriously, too, of the great responsibility that rests upon the universities of this country. None of us can doubt but that democracy is on trial in this country. There are many forces at work adverse to its success. Deeply imbued in the minds of many are strong objections to science. No country, I think, exemplifies so plainly the old adage 'that a little learning is a dangerous thing' as our own. Look to the growing disrespect for authority. Look you to the lamentable absence of clear-headed leadership. Where are your Websters? may truly be cried.

"I am no pessimist, my friends, but it seems to me that the universities of this country have a great work before them. They should be our centres of intelligence and of sobriety of judgment. Above all, we must hold together. I sincerely deprecate this excess of rivalry. I am no enemy of athletics, but I regret very much the asperity that arises in these sports. More so because I feel, and feel strongly, that we must stand together as one body in order to prepare our young men for the great emergencies that are to arise in the onward march of this country.

"I am gratified at the progress your University has made. It is advancing, not with steps, but with strides. Honorable as your past is, the future promises to be better. And, in closing, I wish to say that, apart from all public motives, I have a personal interest in the future prosperity of this noble institution."

Where a College Man Feels at Home.—"Our Little Sisters" was responded to in a very amusing vein by A. P. Burgwin, of the Pittsburg Bar, and a graduate of Trinity College. Among other things he said, "If there is one place on earth where a college man can feel at home it is at such a place as this and among such men. Your great and noble University needs no praise at the hands of a stranger. One need only to look around this large assemblage of great men to see and know what it has done."

The Oldest Alumnus.—Robert Davidson, of Philadelphia, the oldest alumnus present, was presented by Dr. Pepper, and was enthusiastically received. He was supported on each side by Provost Harrison and Dr. Pepper, and spoke briefly of the great contrast of the University of to-day with it seventy years ago. In closing, he said, "I will not live to see dear old Pennsylvania the foremost university in the land, but I hope that many of you will be spared until then."

Judge Thayer was introduced as one of the stanchest and most faithful friends the University possesses. He spoke on "Our Older Graduates," and, among other things, said,—

"While we stand amazed at the progress this University has made during the past twenty years, at its magnificent buildings, at this immense academic staff, and all the splendors of the present institution, we cannot but go back to our younger days." The speaker then recalled the courses given at that time, and mentioned briefly many former students who afterwards became famous.

"You will always find us behind you in every effort you make for its advancement. Noble as this institution now is, it is destined to be nobler, and we hope that through the coming ages it will be what Paris was in the Middle Ages,—a great and shining light to all the world."

"Our Recent Graduates" was responded to by John M. Harris, of the Class of

'87, who spoke briefly of the great responsibility that rested upon the younger alumni in preparing themselves to take the places of those who had so faithfully brought the University to the proud and honorable position that it now holds.

District-Attorney Graham spoke on "The Profession Schools." He said that "men may come and men may go, but the University goes on forever," comparing the institution to the Delaware River; while its composition was constantly changing, yet the Delaware always remains. He spoke of its progress, saying that the student of to-day, compared with the past, possessed matchless and wonderful facilities. "The University," he said, "made a great step upward when it took a decided stand on the question of purity in athletics. Another thing that has been potential in moving it upward is the alumni organization. Another step in advance, which I hope will soon be made, is the removal of the Law School to the campus. It is the only part of this great family that has not been brought home."

A Reception in Honor of the Provost.—The members and the invited guests then repaired to Houston Hall, where a reception was given by the society in honor of Provost Harrison.

Election of Officers.

Officers for the ensuing year were then elected as follows: President, Dr. William Pepper; Vice-Presidents, Rev. George Stuart Fullerton, Dr. Horatio C. Wood, Hampton L. Carson, Dr. Edward C. Kirk, Dr. John Marshall; Treasurer, William Lane Winner; Secretary, Ewing Jordan; Executive Committee, J. Levering Jones, Franklin B. Ellis, Chester N. Farr, George Q. Horwitz, William P. Pepper, Joseph G. Rosengarten, H. B. McFadden, L. Foster Jack, George C. Kusel, Alfred Stengel, Wharton Sinkler, Norton Downs, John W. Adams, Simon J. J. Harger, Leonard Pearson, John C. Bell, George Harrison Frazier, and H. Laussat Geyelin.

The Annual Dinner of the Alumni Society of the Medical Department of the University of Pennsylvania.

The Twenty-sixth Annual Dinner of the Alumni Society of the Medical Department of the University of Pennsylvania was given in the Philadelphia Bourse on June 10, 1896. Dr. R. A. Cleemann presided, and Dr. Roland G. Curtin, chairman of the Executive Committee, read a report of the work of the year. More than 100 new members had been added, and the society, he said, was in a flourishing condition. He also made several suggestions for the advancement of the organization.

After the dinner had been served a number of toasts were responded to. Dr. John Ashhurst, Jr., was the first speaker. His subject was "The Medical Department," and in the course of his remarks he told of the changes which were being inaugurated in the medical school. The first change he mentioned was in the government of the medical department, which is now under the corporation, and has become an integral part of the University. The faculty are now paid directly

from the corporation, and have no longer any pecuniary interest in the success of the department.

Another change proposed is the increased severity of the entrance examinations. The questions, he said, had been under consideration for a number of years. The department had now entered upon a progressive course, and by 1899 every student entering the medical school would be obliged to show evidence of the same liberal education as required for entrance to the college.

Ex-Congressman Thomas Dunn English, of Newark, famous as the author of "Ben Bolt," responded to the toast, "One of Our Alumni." Dr. English graduated from the University in 1839, when it was located on Ninth Street. His address was exceedingly interesting, being largely reminiscent. He told many amusing anecdotes of his college days and of the physicians who then composed the faculty.

Prior to the dinner officers were elected as follows: President, Dr. Traill Green; Vice-Presidents, Drs. Meredith Clymer, Jacob Price, Claudius Mastin, John H. Packard; Secretary and Treasurer, Dr. Joseph P. Tunis; Executive Committee, Drs. Horace Y. Evans, John Ashhurst, Jr., R. A. Cleemann, Samuel S. Stryker, De Forest Willard, Roland G. Curtin, S. D. Risley, William Barton Hopkins, Charles W. Dulles, John H. Musser, John B. Deaver, Thomas R. Neilson, Judson Daland, Harry H. Whitcomb, Elliston J. Morris, David B. Birney, B. F. Stahl, Alexander R. Craig, Charles H. Frazier, Guthrie McConnell.

Class Reunions.

The Class of '66 of the Medical Department of the University of Pennsylvania held its thirtieth anniversary at the Bellevue, on June 8, 1896. Dr. S. S. Stryker presided, and a number of informal speeches were made. Those present were: Dr. W. H. H. Githens, Dr. F. A. Gatshall, Dr. E. I. Santee, Col. A. I. DuPont, of Wilmington; Dr. H. L. Orth, of Harrisburg; Dr. C. H. Sproul, Dr. A. C. Lambdin, Dr. W. H. C. Smith, Dr. W. H. Risk, Dr. G. W. Metzger, Dr. M. L. Mench, Dr. Thomas Lancaster, Dr. James B. Ely, Dr. David W. Harvey, Dr. George M. Stiles, Dr. F. B. McDowell.

The Class of '86 of the Medical Department celebrated its tenth anniversary at Houston Hall on June 11, 1896. Dr. Charles W. Burr acted as toast-master.

Appointment.

At a meeting of the trustees of the Methodist Episcopal Hospital, held on June 5, 1896, Dr. Joseph P. Tunis (A.B., '86, M.D., '89), was elected visiting surgeon to the hospital in place of Dr. H. R. Wharton, resigned.

Necrology.

Dr. C. H. Ball died in Philadelphia on June 14, 1896. He graduated from the University of Pennsylvania in 1864.

EDITORIAL.

INFANTILE SCURVY.

Since Northrup read his first paper on infantile scurvy before the New York Academy of Medicine, in February, 1894, the disease has attracted considerable attention, both in this country and abroad, and a sufficient number of cases has been reported to indicate that the affection is not so rare as was formerly believed. To Barlow belongs the credit of first establishing the clinical and pathological identity of the condition, and very little has been added to its symptomatology since 1883, when that author published the results of an analysis of thirty-one cases, and summarized the characteristics of the disease as follows: "(1) Predominance of lower-limb affection in which there is immobility going on to pseudo-paralysis, excessive tenderness, general swelling of the lower limbs, skin shiny and tense, but seldom pitting, and not characterized by undue local heat; on subsidence revealing a deep thickening of the shafts, also liability to fracture near the epiphysis. (2) Swelling of the gums about erupted teeth only, varying from definite sponginess down to a vanishing point of minute, transient ecchymosis. (3) Definite and rapid amelioration by antiscorbutic regimen."

Barlow's view, that the condition described by him was in reality infantile scurvy has not gone unchallenged, especially among German observers, some of whom still refuse to recognize the identity of the affection with scorbutus, and prefer to use the original designation of Barlow's disease, or to consider the latter a modified form of rickets. The soundness of Barlow's conclusion, however, is supported by the following facts: Many cases of the disease have been reported in which there were no signs of rickets; cutaneous and subperiosteal hemorrhages do not occur in rickets; although hemorrhagic gingivitis is rare in infants unless the latter have teeth, it should be remembered that the same condition is often absent in toothless adults suffering from scurvy; and, finally, the disease recognized as infantile scurvy is promptly relieved by antiscorbutic treatment. While infantile scurvy and rickets appear to be distinct entities, nevertheless, it must be admitted that the two affections have certain features in common, and are not infrequently associated in the same subject.

The causes of scurvy in infants have been summarized by Nor-

thrup and Crandall (*New York Medical Journal*, May 26, 1894) as follows: "Scurvy may appear at any period of infancy or early childhood, but is most common between the ninth and fourteenth months. It occurs in every grade of the social scale, but is more frequent among the rich than among the poor. The neglected child who eats everything at the table may become rachitic or marasmic, but he obtains enough fresh food to protect him from scurvy. It very rarely occurs in asylums or hospitals, because in recent years feeding in such institutions has been more rational than in many private families. Lack of fresh food is the most important cause, the use of the proprietary foods and condensed milk produces more scurvy than all other causes combined. Even fresh milk in small proportions is not sufficient to insure protection." In the Bradshaw lecture, delivered before the Royal College of Physicians of London, on November 6, 1894, Barlow reported thirty-three typical cases which had come under his observation since 1883. Of these only six were hospital cases; the others were the children of well-to-do people, with healthy surroundings and good homes. The causes operating in these cases were practically the same as those indicated by Northrup and Crandall.

It has been shown more recently that proprietary foods, condensed milk, and cow's milk too freely diluted are not the only offenders, but that sterilization or prolonged boiling of new milk of good quality is sometimes an important factor in the development of infantile scurvy. This seems to have been the chief cause in cases recently reported by Starr, Jacobi, Barlow, Buckingham, Townsend, and others.

The diagnosis of infantile scurvy is a matter of some moment, the more so since the failure to institute treatment early is often followed by a fatal result, while, on the other hand, the prompt employment of antiscorbutic treatment effects a rapid and complete cure. The diseases for which it is most apt to be mistaken are rickets, rheumatism, stomatitis, congenital syphilis, infantile paralysis, osteitis, and sarcoma. Marsh (*British Medical Journal*, December 1, 1894) reports three cases in which the diagnosis was mistaken for sarcoma of the femur, eyeball, and gums respectively. Northrup and Crandall also mention a case in which a scorbutic swelling on the lower end of the femur was mistaken for sarcoma. As a rule, however, symptoms of scurvy are so pronounced when sought for that there is but little difficulty in making a diagnosis when the condition is borne in mind.

On the treatment of the disease there is but one opinion, and that is that the best results are secured by the prompt substitution of "living food," such as fresh milk, fresh beef-juice, and orange-juice for proprietary food, condensed milk and sterilized milk.

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.,

ASSISTED BY

M. HOWARD FUSSELL, M.D., AND A. O. J. KELLY, M.D.

Pulmonary Tuberculosis treated with Maragliano's (Antitubercular) Serum.

Carlucci (*Medical Record*, April 11, 1896) reports five cases of phthisis treated by injections of serum with very marked improvement in all the cases. Much greater improvement than could be obtained by any other method. He concludes:

(1) The serum is innocuous.

(2) It causes drying up of broncho-pneumonic foci.

(3) It increases the appetite, the weight increases, and physical force gradually returns.

(4) The effect of the serum is gradual.

The mode of preparation of serum is not definitely known, but all of the soluble toxic products of a culture of human tuberculosis are prepared and injected into dogs and horses in increasing doses. From these animals the serum is drawn.

Life History of the Malaria Germ Outside the Human Body.

Manson (*British Medical Journal*, March 14, 21, and 28, 1896), the author, sketches the life history of the malaria germ as seen in the human blood. He considers the rosette form a form of sporulations, the rosette finally in some way loses its envelope of the red corpuscle, the spores scatter, enter a red corpuscle, and develop into mature organisms. These are the forms seen in freshly-drawn blood. After a few hours the rosette form disappears, and in their stead are seen granular pigmented ameboid bodies in the corpuscle. A few hours later still, there are only a few or, perhaps, none of these ameboid bodies, but in their stead the mass fills the corpuscle, the granules of pigment are larger and scarcely move. If the examinations be again repeated just before the paroxysm or in the beginning of the paroxysm we again find the rosette forms. He concludes that the large pigmented intracorpuscular body is a parasite preparing for sporulation; that the rosette form is the same with the sporules formed; that the spherules into which it separates are spores, these spores on becoming free enter the red corpuscles and begin to grow at the expense of the red corpuscle. In searching for the parasite outside the human body, the best plan is to trace it out of the body, to follow its destinies step by step until it again reaches the human body. He believes that the plasmodium is a true and not merely an accidental parasite of man.

First Extracorpuscular Phase.—If the slide be examined fifteen minutes or more after the blood has been drawn we observe a pigmented body free from the corpuscle with flagellæ. This body comes into existence only *after the blood has been withdrawn from the circulation.* He has observed a free spherical body escape from a red cell, and has observed one of the spheres develop flagellæ. If dozens of slides from the same blood be made and immediately fixed none will contain flagellate bodies.

Another form of body is the crescent. If several crescents be observed under several microscopes the crescent will slowly change its form, slowly changing into a sphere. There is always a mass of pigment about the centre of the crescent; this is motionless. When the sphere is formed, the pigment bursts from what is apparently its envelope and begin to move in a violent manner, and finally flagellæ appear on the sphere and move it about.

The transformations of the spheres and crescents into flagellate bodies the author believes to be the first phase of the extracorporeal body, and not a process of degeneration. He believes that they are the homologues of the sporulating body.

Reasoning from analogy and citing the filaria as an instance the author gives much interesting reading in stating his belief that the mosquito is the means by which the malarial organism gets outside of the body. He believes that the presence of the parasite inside the corpuscle in the body is a means of protection against phagocytes which would otherwise devour it. As soon as the blood is sucked by the mosquito, however, the great majority of the parasites, he believes, are changed into flagellate bodies. He thinks that they, the flagellæ, separate from the central mass and enter some particular cell of the mosquito's body and are again ready to enter man.

The author, not having the proper opportunity to examine blood taken from the body by mosquitoes, interested Surgeon-Major Ross in the subject, who performed the following experiments:

A patient, in whose blood there were abundant crescents, was put under a net. He then put under the net mosquitoes he had reared from the egg, allowed them to suck the blood, and then examined their stomach contents with the following results: The crescents were not killed and digested, but, on the contrary, with the exception of an insignificant proportion, all proceeded rapidly to development. Almost all became spheres, and at least 40 or 50 per cent. of them proceeded to flagellation and liberation of flagellæ.

Ross's report is as follows:

(1) Almost all the crescents are converted into spheres very shortly after they enter the mosquito's stomach.

(2) Spheres are always found; they have a perfect contour, and contain a clear material, which distinguishes them from the mass of corpuscles amidst which they are found.

(3) Flagellate bodies may be found in from seven to thirty-five minutes or more.

(4) Spent spheres or pigment masses may sometimes be seen very early, their number steadily increases.

(5) Phagocytes containing spent spheres and pigment begin to be seen later than the spent spheres.

(6) About 30 to 40 per cent. of spheres fail to show flagellæ.

He fed a native on water in which some mosquitoes, to which had been given malarial blood, had laid their eggs and died. Malarial grubs and eggs were swal-

lowed by the native. Eleven days afterwards the native developed fever which lasted three days. The blood contained organisms. This experiment was repeated without result.

The Treatment of Leucocythemia with Bone-Marrow.

Whait (*British Medical Journal*, April 4, 1896) reports the case of a female, aged 56 years, who was admitted to the hospital, complaining of pain in the left side, enlargement of the abdomen, dyspnea, cough, weakness, and loss of flesh. The patient was thin, the spleen enlarged, firm, not tender. The inner aspect of the left tibia was thickened and tender. Erythrocytes, 4,150,000; leucocytes, 329,360 (1 to 126); hemoglobin, 60 per cent.; poikilocytes and granule-masses present. During seventeen days under arsenic treatment (℥ ij to ℥ xij, t. i. d., liq. potass. arsenit.) no improvement occurred. There was then begun the administration of a dessertspoonful of ox bone-marrow spread on toast, three times a day, and the arsenic was continued. Immediately a remarkable diminution in the number of leucocytes followed, and continued after the arsenic was discontinued. The liver and spleen diminished in size. At the end of eight weeks of treatment the erythrocytes numbered 4,170,000, the leucocytes 25,000 (1 to 167). In addition, ferri carb. sacchar., gr. xx, t. i. d., was given. At the end of four weeks the erythrocytes were in number 4,200,000; leucocytes, 20,000; hemoglobin, 70 per cent. There then developed a marked peripheral neuritis, unquestionably due to the arsenic, which was then stopped. Two weeks later the erythrocytes numbered 4,300,000; the leucocytes, 19,500. The bone-marrow becoming distasteful to the patient, tabloids of compressed marrow were substituted therefor. Two weeks later the erythrocytes were 4,370,000; the leucocytes, 14,500 (1 to 300); the hemoglobin, 80 per cent. At the end of five weeks more the liver and spleen were of normal size, and the neuritis had disappeared. The patient left the hospital and subsequently ceased taking the marrow, and at the end of six months returned with the spleen larger than ever and very tender; the erythrocytes numbering 3,670,000; the leucocytes, 225,000 (1 to 136). Was again given the tabloids of bone-marrow and ferri carb. sacchar., and began to improve at once. At the end of four weeks the erythrocytes were 3,700,000, the leucocytes 21,760 (1 to 170). Four weeks later the patient became very sick and breathless, pulse rapid, temperature 102° F., pulmonary congestion and pleurisy, edema of face, upper and lower extremities. The patient gradually lapsed into a semi-comatose condition, and died a week later. At the autopsy there was a typical leucocythemic spleen; the suprarenals were very greatly atrophied; the marrow of the ribs red. In this instance the bone-marrow proved itself a very valuable agent, and probably had the patient continued its use the second attack would have been averted, much in the same way as myxedema is controlled by the continuous use of thyroid extract. The marked bronzing of the skin, which was present, is interesting in view of the condition of the suprarenals as found post mortem.

Case of Acromegaly with Autopsy; Tumor of the Pituitary Body.

Worcester (*Boston Medical and Surgical Journal*, April 23, 1896) reports the case of a female, a widow, native of Ireland, aged 70 years. She was short and stout, feeble and infirm. The heart and lungs were apparently normal. The case was apparently one of well-marked myxedema. The eyelids were thick, nose very broad, skin of forehead markedly affected, cheeks, lips, and tongue thickened. The hands, fingers, feet, and toes were thickened and club-shaped; the skin below

the elbows and knees scaly. Motion was slow and difficult, the mind sluggish, and the memory impaired. She was given thyroid extract for a short time and improved. At the end of a year the patient's condition had undergone a considerable change. There was nowhere any myxedematous appearance. The skin was not tense, but on the forehead markedly wrinkled and very coarse in texture. The face, hands, and feet were much enlarged; the nose very thick, though the bones appeared to be not increased in size; the tongue was so large that there was scarcely room for it in the mouth, and during sleep it habitually protruded. There was a considerable degree of kyphosis; there was a nearly bald spot over the upper part of the right parietal bone, with which exception the hair of the scalp was rather unusually thick and coarse. There was a rudimentary beard on the upper lip and chin; the hair of the axillæ and pubes was retained, and the arms were rather hirsute for a woman. The mind was feeble, the appetite ravenous. The hemoglobin was 85 per cent., erythrocytes 5,860,000, leucocytes 13,000. The patient gradually passed into a somnolent state and died. At the autopsy the brain weighed 1170 grammes (forty-one and a quarter ounces), and was apparently normal. The pituitary body was much enlarged, weighed 5.8 grammes (eighty-nine and a half grains), and was four and six-tenths centimetres in its longest diameter. Microscopically it was a sarcoma with psammomatous degeneration. There is believed to be sufficient evidence to refute the hypothesis that the enlargement of the hypophysis in acromegaly is, like other hypertrophies, merely a symptom of the disease. The lesions of the pituitary body have been various, and it hardly needs argument to show the improbability of any one disease causing in a single organ so many and various morbid conditions having nothing in common but alteration of structure. The points of interest are the advanced age of the patient and the condition suggestive of myxedema permanently disappearing during treatment with thyroid extract.

The Use of the Röntgen Rays in the Diagnosis of Arterio-Sclerosis.

Hoppe-Seyler (*Münchener medicinische Wochenschrift*, No. 14, April 7, 1896) details the results of two attempts to make use of the Röntgen rays in the diagnosis of arterio-sclerosis. First photographed a leg amputated for fibro-sarcoma. The result not only revealed an old fracture which could not be localized before amputation by the ordinary means, but showed also the anterior and posterior tibial arteries indicating irregularities in outline and variations in thickness, due to the variations in the development of the atheromatous process. He then photographed the hand of a man, the subject of marked arterio-sclerosis, and could readily distinguish in the picture narrow bands running along-side and between the metacarpal bones, indicating the atheromatous arteries. The pulsation in living vessels will, of course, interfere with securing very good pictures, still one may hope that with perfection of technique one may be enabled to diagnose arterio-sclerosis of deeper structures,—the aorta, for instance.

An Unusual Rash in Enteric Fever.

Day (*Dublin Journal of Medical Science*, March, 1896) describes the case of a male, aged 24 years, admitted to the hospital on the twelfth day of an attack of enteric fever. There was present a rash slightly on the forehead and face, copious on the abdomen, back, and chest; some on the thighs and arms; absent on the hands and feet. It was dark-red, somewhat irregular, with a tendency to circular outline; in some places like enteric spots or enteric spots in pairs, fairly well

defined in outline; the spots were raised, not punctate, soft, disappeared on pressure; in fact, conveyed the sensation of enteric rash to the finger; some of them after pressure left an indistinct mottle, but at no time in the course of the disease did they correspond to true petechiæ. The patient became "typically typhoid." On the twelfth day after admission the rash was fading, and the patient ultimately recovered. The author has seen at least ten cases of enteric fever which presented the rash. The points of interest about the rash in this case were the difficulty of diagnosis and as to its prognostic value. The rash may be mistaken for that of typhus fever or a prodroma of small-pox. In making a diagnosis we are to be guided by the history of the case, the likelihood of exposure to infection, and the appearance of the rash. The author believes that a copious rash has a distinct bearing upon prognosis. He has for a long time taught that the signs which make one expect and guard against hemorrhage are clear intellect, high temperature, fast pulse, and distended belly; add to these the rash as described above, and one may look upon hemorrhage as an almost certain complication. Four times he has seen these symptoms and four times successfully foretold the occurrence of hemorrhage. Even when the ordinary enteric rash is abundant, one should look upon the case as likely to be severe, and give a guarded prognosis.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

GWILYM G. DAVIS, M.D., M.R.C.S., AND ELLWOOD R. KIRBY, M.D.

Packing with Boric Acid after Excision of Glands.

Yocom (*New York Medical Journal*, January 11, 1896), after excision of suppurating glands, advises the following procedure. The inflamed gland is either dissected out entire or removed with the sharp curette. The removal of the dead and dying tissue must be as thorough as possible. The cavity is irrigated with hot sterile water and packed for a few moments with hot, moist, sterile gauze to remove loose *débris* and check oozing. The edges are trimmed, the gauze removed, and the whole cavity is not powdered, but packed, and packed full, with powdered boric acid (C. P.). The incision is immediately closed throughout with interrupted suture. No drainage is needed except in neglected cases. Boric acid is dusted on and a firm compress applied with a spica bandage.

Treatment of Tetanus.

Trevelyan (*British Medical Journal*, February 8, 1896) reports a case of cephalic tetanus treated by injections of antitoxic serum. The serum was obtained from Roux, of Paris. Half of the serum in the tube was injected on the second day and the other half on the third day, but no trace of improvement could be detected even by the most interested witnesses. The author states that it is the third case in which he has assisted in the serum treatment, and in no case did it

exercise the slightest influence on the course of the disease. There were in all seven cases.

WILLARD and JOHNSON (*Transactions of the Philadelphia College of Physicians*, Vol. XVII, p. 27) reported a case of recovery from cephalic tetanus following a slight injury in the neighborhood of the eye. The treatment consisted in loosening the scar and administering sedatives. The patient was a boy 12 years of age, and the doses were increased until he took, in each twenty-four hours, seventy-five grains of bromide of potassium, thirty grains of chloral, and thirty-six drops of the deodorized tincture of opium. [ED.]

TENDON SUTURE.

MARCY (*New York Medical Journal*, January 4, 1896) describes the preparation and use of the tendon suture. The tendon of a freshly-killed animal is taken and quickly sun dried. It is kept dry until ready for preparation. It is soaked in 1 : 1000 solution of bichloride of mercury until supple. Then each suture is separated and dried between sterilized towels. They are next assorted in small bundles and chromicized with the greatest care in a 1 : 20 watery solution of carbolic acid, to which has been added one four-thousandth part of purified chromic acid. This will prepare tendons of a weight equal to the crystals of carbolic acid. The tendons must be immersed immediately on the preparation of the fluid, otherwise in a short time the chromic acid is thrown down as a sedimentary deposit. The tendons are left in the acid until they are of a dark golden color (how long this takes is not stated), and then removed and dried in the sunshine between sterilized towels. They are preserved in carbolized linseed oil. They improve with age. Before use they are soaked in 1 : 1000 bichloride solution until supple.

LAPAROTOMY FOR PERFORATION IN TYPHOID FEVER.

HOTCHKISS (*New York Medical Journal*, January 11, 1896) reports a case of a man, aged 24 years, in whom a perforation of the intestine, occurring in the course of typhoid fever, was treated by operation. Ether was used and a median incision, three and a half inches in length, made between the umbilicus and the pubes. On incising the peritoneum a large quantity of cloudy, serous fluid, containing big flakes of fibrin and probably some fecal matter, gushed out. There were no adhesions. The perforation was found five inches above the ileo-cecal valve, it was quite small, ragged, and its edges infiltrated and softened. An inch or more was turned in and sutured with Lembert sutures. The abdomen was flushed with hot salt solution and the wound closed with gauze drainage. The patient died four and a half hours after the operation with a temperature of 108° F.

CEREBRAL CONCUSSION.

KRAMER (*Annals of Surgery*, February, 1896) summarizes his study of cerebral concussion as follows: A blow on the head produces a momentary increase of intracranial tension and consequent compression of the brain as a whole.

The effect of this compression would be to cause an interference with the blood-supply to the entire brain, and this is sufficient to account for the primary symptoms of cerebral concussion.

The so-called syncopic death after severe concussion is produced by a paralysis of the respiratory centres, the cardiac centres remaining intact. This fatal result may, in many cases, be prevented by the prompt institution of artificial respiration.

Separation of the Upper Epiphysis of the Humerus: Open Operation.

McBurney (*Annals of Surgery*, February, 1896, reported to the New York Surgical Society the case of a boy, aged 15 years, who had sustained a separation of the upper epiphysis of the humerus. It was caused by falling on the shoulder. The head of the bone was in the glenoid cavity, but the shaft was displaced upward and forward; its rough end could be felt a short distance below the skin. As the fragments could not be replaced notwithstanding the administration of ether, an incision was made three inches long over the prominent upper extremity of the shaft. The upper end of the lower fragment was found so embedded in the deltoid muscle and fragments of the periosteum as only to be loosened by incision. The displacement was then reduced and the wound sewed shut with catgut and drainage; clean wound-healing rapidly followed. Motion of the joint was restored and no interference with the subsequent growth of the bone occurred.

Local Peritonitis.

Robinson (*New York Medical Journal*, January 25, 1896) concludes an investigation of local peritonitis as follows:

(1) The local peritonitis of adults is hardly ever directly fatal, but may produce a train of symptoms, such as indigestion, malnutrition, anemia, and neurosis.

(2) The peritoneal adhesions which demand operation belong almost exclusively to those involving the organs of high mobility and peristalsis, such as the small intestines, the sigmoid, the bladder, and the Fallopian tubes (especially amputated ones).

(3) Local peritonitis occurs at fixed bowel flexures, and at the longest range of muscular action associated with the peritoneum.

(4) The etiology of the adult local peritonitis is infectious invasion through the gut wall.

(5) The methods of transmission of infection are through abrasion of the mucosa aided by the trauma of muscular action on a bowel containing pathogenic microbes.

(6) Local peritonitis does not occur in infants at bowel flexures, or especially over the long range of muscular action.

(7) It is extremely rare to see an adult with a normal peritoneum,—*i.e.*, free from peritonitis.

(8) The constant adhesions found around the gall-bladder and ceco-appendicular apparatus teach us that operations in these regions cannot be justified merely on account of the adhesions.

(9) Adult local peritonitis seems to increase with age.

(10) Peritonitis is nature's method of repair and prophylaxis. Peritonitis saves life, while infection kills.

(11) Peritonitic adhesions seem to be able to organize and appear and act like normal peritoneum.

(12) Local peritonitis occurs chiefly in the dorsal region, at the points where the mesenteries fix the digestive tract and close to the highest range of muscular action. Muscular trauma, abraded epithelia, and infection tell the tale.

(13) The track of the infection from mucosa to serosa cannot always be traced. A healthy mucosa (and even muscularis) may underlie many peritoneal adhesions, or a healthy serosa may be adjacent to diseased mucosa.

(14) The dense adhesions of local peritonitis may result in strictures, ma-

lignancy, dislocated viscera, pain, restriction of peristalsis, and immobility of organs—disease.

(15) The peritoneum may have its endothelium abraded traumatically by muscular action, and the resulting healing be cicatricial; the matter of local peritonitis being a slow, gradual, evolutionary process of adult life.

THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D., AND ARTHUR A. STEVENS, M.D.

Tannigen in the Diarrhea of Children.

Strauss (*Berliner klinische Wochenschrift*, No. 3, 1896) has employed tannigen in twenty-eight cases of diarrhea. Of these, twenty-two were infants ranging from 3 weeks to 1 year, five were children from 1 year to 13 years, and one was an adult with phthisis. Sixteen of the patients had acute gastro-enteritis, and eleven, chronic diarrhea. In all of the acute cases, but one, the remedy acted promptly, the diarrhea and vomiting ceasing on the first, second, or third day. In one case, however, it proved inefficient. In the cases of chronic diarrhea, all of which were under 1 year of age, tannigen gave excellent results. Diarrhea of several months' duration, which had resisted other remedies, yielded with wonderful rapidity. A knife-pointful three times daily was administered, the size of the dose, however, ranging with the age of the child. In acute cases a large dose was first administered and then followed by several small doses. No disturbance of the appetite from the action of tannic acid was observed. The remedy was continued for a few days after the arrest of the diarrhea.

Antitoxin of Diphtheria in Tokio.

Nakagawa (*Boston Medical and Surgical Journal*, April 2, 1896) writes to the *Lancet*, from Tokio, as follows:

"Dr. Kitasato has just published a detailed report of 353 cases treated at the institute with the serum prepared under his supervision. For those who have no access to the original a few brief extracts may be of some interest.

"*Mortality.*—Professor Kitasato collected from reliable sources 26,521 cases of diphtheria in Japan previously to serum-therapy, with 14,996 deaths (56 per cent.); while of 353 cases treated here from November 13, 1894, to November 25, 1895, there were only 31 deaths (8.78 per cent.). There is reason to believe that the mortality can still be lowered if the treatment could be commenced early in the course of the disease. Thus in 110 cases in which injections were made within forty-eight hours after the invasion all ended in recovery. On the other hand, of 33 cases treated after the eighth day of the disease, 11 were lost. Some of the patients were brought into the institute in a moribund condition, and 6 children died within five hours after admission, 6 more within ten hours; altogether 21 cases (two-thirds of the total mortality) were lost within the first twenty-four hours. As to the effect of the serum on the course of the disease, the first thing to be noted is (*a*) the fall

of temperature; in many cases the defervescence was almost critical, and it takes place usually at the end of twenty-four to forty-eight hours. Secondly (*b*), the separation of the false membrane, which takes place, as a rule, after the return of the temperature towards the normal. Very large casts of the trachea and larger bronchi have been coughed up. (*c*) Urticaria-like eruptions were observed in very many cases, being in some quite severe and annoying. They, however, disappeared in a few days without any treatment. (*d*) In four cases marked albuminuria was observed at the time of admission. In these cases albumin disappeared from the urine in the course of treatment. Pyrexia was accompanied by albumin in the urine, but there was no reason to believe that any renal trouble was caused by the injections. (*e*) Five cases developed paresis of the soft palate. I wish to note, in conclusion, that microscopic as well as culture examinations were made in every case, and Dr. Kitasato's report only deals with those cases in which Löffler's bacilli were demonstrated to be present."

Theobromine.

Huchard (*Gazette des Hôpitaux*, February 22, 1896), at a recent meeting of the Société de Thérapeutique of Paris, stated that he had used theobromine for over two years, in more than 200 cases, as a diuretic in heart- and kidney-disease: he believes it to be superior to both caffeine and digitalis. The dose is seven and a half grains, which may be taken every two hours until seventy-five grains are taken as the daily dose. Occasionally it causes an intense headache, which may compel discontinuance of the drug; more rarely it excites nausea and vomiting. Theobromine, according to Huchard, should be classed with the functional diuretics which act without offending the renal epithelium. It is especially indicated in anasarca dependent on renal or cardiac disease. The drug is not toxic and has no cumulative effect. After its administration diuresis follows promptly and continues from two to four days after suspension of the remedy.

A New Treatment for Persistent Hiccough.

Lepine (*Le Bulletin Médical*, No. 13, 1896) reports a case of persistent hiccough occurring in a non-hysterical girl, and probably dependent upon some gastric affection, which was cured, after having lasted for three days, by spontaneous traction of the tongue. It was observed that while the tongue was being examined the hiccough ceased. The girl was then directed to protrude the tongue in a rhythmical manner. The author explains the result upon the theory of reflex action on the bulbar respiratory centre.

Some of the Therapeutic Uses of Guaiacol.

McCormick (*Medical News*, May 2, 1896) read a paper upon the above subject at a recent meeting of the Philadelphia County Medical Society. He related that during the past two or three years he had employed topical applications of guaiacol in the treatment of forty-three cases of typhoid fever in hospitals and private practice, equally divided between the two sexes, and covering wide variations in age. In all, 864 applications were made, the largest number in any one case being seventy-eight, the smallest, one; the largest dose was twenty-five drops, the smallest two. The greatest reduction of temperature was from 108.6° to 101° F., with a corresponding reduction in respiratory and pulse frequency. Dr. McCormick has not found guaiacol, employed topically, depressing; on the contrary,

with the reduction of temperature the drug seemed to have a stimulating influence upon a weak heart. The reduction of temperature effected lasts from three to four hours. At first chills occurred, but these were noted less frequently as experience taught the smallest dose necessary for the antipyretic effect. The applications were usually made in the right iliac fossa, the skin being washed with soap and water, then dried thoroughly, the guaiacol finally being dropped on the surface and gently rubbed in for ten or fifteen minutes. The part was finally covered with oil-silk or wax-paper. In a few cases local irritation resulted from the application. Otherwise there were no unpleasant effects. Sweating occurred nearly always, and was proportionate to the reduction of temperature. The cold bath is an efficient means of treating typhoid fever, but guaiacol has the advantage of ease and practicability of application, accessibility, inexpensiveness, freedom from contra-indications and bad effects, and of not arousing the objections of patients and their families.

Guaiacol may also be used internally as an intestinal antiseptic, but thus employed it does not reduce temperature. The drug has been given in emulsion and in capsules, but its taste is disagreeable, and guaiacol carbonate may be given instead, in doses of two and a half grains.

In the discussion which followed the reading of the paper, it seemed to be the general opinion that while guaiacol was useful in certain cases of typhoid fever, it was open to the same dangers as antipyrin and phenacetin, and was not so useful as the cold bath, intelligently applied.

Irrigation of the Stomach with Silver Nitrate.

Reale (*Deutsche medicinische Zeitung*, April 13, 1896) has employed Folanini's treatment of chronic gastric catarrh in twenty cases. In eleven of these cases the effect of the treatment on the chemistry of the stomach was carefully studied. None of the eleven patients had chronic gastritis with subacidity. At first a solution containing three and three-quarters grains of silver nitrate to about five drachms of water was employed for irrigation. The strength of the solution was gradually increased, but a strength of twenty-two grains of the silver salt to five or six drachms of water was never exceeded. Immediately after the use of the silver solution, the stomach was irrigated with a solution of from 3 to 5 per cent. of sodium chloride. The best results were obtained when the strong solutions were employed. The treatment has the following effects: an increase in the motor power of the stomach, as shown by the decrease in the gastric contents an hour after a test-meal, an increase in the secretion of hydrochloric acid, the cessation of vomiting, and, finally, a marked improvement in the general condition of the patients.

Bromoform in Whooping-Cough.

Marfan (*Revue Internationale de médecine et de Chirurgie*, April 25, 1896) states that he has employed bromoform in forty cases of pertussis with good results. He believes it to be superior to antipyrin and to belladonna. For children, under six months, the daily dose is from two to three drops, for children of from six months to a year, from three to four drops. The daily dose should be administered in three portions. He prescribes it in an emulsion made of almond oil, gum arabic, gum tragacanth, cherry-laurel water, and water. According to Marfan, for the first two or three days the paroxysms of coughing may appear to be aggravated, but after the third or fourth a marked improvement is noticed. The remedy, however, is not uniformly successful, and the author cites three cases in which it was administered without benefit.

OBSTETRICS.

UNDER THE CHARGE OF

BARTON COOKE HIRST, M.D.,

ASSISTED BY

RICHARD C. NORRIS, M.D., AND FRANK W. TALLEY, M.D.

Cynocephalous Monster.

Joseph Haven (*Journal of the American Medical Association*, February 29, 1896) reports the following case of maternal impression: Mrs. D. since her childhood has been possessed of great fear of even the picture of a dog, her mother having been frightened by one while carrying her *in utero*. After her marriage, Mrs. D. was greatly frightened by a dog, and being six weeks pregnant believed that her child would be marked like a dog. Later she was attacked and bitten by the same animal, and immediately gave birth, prematurely, to a monster whose head was exactly similar to that of a dog.

Prolonged Intra-Uterine Retention of an Ovum.

Resnikow (*Centralblatt für Gynäkologie*, XIX, 9, 1895) reports a case of prolonged intra-uterine retention. The patient had been twice confined,—the last time with twins. At the seventh month of a following pregnancy she had a severe illness with fever, during which labor-pains came on, but lasted only a short time. She afterwards was troubled with purulent discharge and rigors followed by amenorrhea. After four years the uterus was dilated and the bones of a seven months' fetus removed. She recovered health.

Prolonged Intra-Uterine Retention of an Ovum.

Orloff (*Präger medicinische Wochenschrift*, XX, 22, 1895) reported the case of a 42-year-old pluripara who gave birth to her tenth child in November, 1893, after which she suffered from jaundice and amenorrhea. She developed melena and hematemesis with enlargement of abdomen in February, 1894. She was on three occasions tapped for ascites and died November, 1894, from cirrhosis and rupture of a branch of the coronary vein of the stomach near the cardia. In the right cornua of the uterus were found the spherical remains of an ovum about two and a half centimetres in diameter, consisting of the chorion with many calcified villi. The amnion and embryo had apparently escaped through a tear in the lower part of the ovum which had no organic connection with the uterine wall. Under the microscope the mucosa showed where the ovum had been attached. Orloff estimated the development of the ovum at from two to three months, that the retention had lasted about a year, and that there had been no uterine hemorrhage.

Management of Occipito-Posterior Positions.

Rosenberg (*New York Polyclinic*, January 15, 1896) classifies cases of occipito-posterior position in two groups: (1) Those occurring in mothers with a large pelvis, with strong muscular development and endurance, and a small product; and (2) those occurring in mothers with small, undeveloped muscles, deficient enduring power, and large children.

Anterior rotation of occipito-posterior positions demands strong pains and active assistance of the abdominal muscles. In women with insufficient staying power anterior rotation frequently does not occur, and it is impossible, during the first stage of labor, to predict if it will occur or not. To avoid unnecessary operating, the accoucheur should wait until the woman has demonstrated her inability to deliver herself. If this becomes evident, the head should be delivered with forceps without rotating it anteriorly. In the mechanism of labor in occipito-posterior positions the upper portion of the frontal bone becomes fixed under the pubic arch; then the occiput passes over the perineum while the sinciput is strongly flexed and the face is born last through extension of the head. This mechanism is but imitated in the delivery by forceps, by making the first traction in a horizontal direction until the large fontanelle can be felt under the pubic arch. The next position is the so-called third,—that is, the handles of the forceps are gradually raised to deliver the occiput, and when this is accomplished, the birth of the face follows easily upon a depression of the forceps unto the first position. To attempt the fixing of the frontal bone under the pelvis by making downward traction is mechanically wrong, requires additional force, and usually causes deep laceration of the perineum.

Funis Presentation and Funis Prolapse.

E. J. Brady (*Dublin Journal of the Medical Sciences*, January, 1896) favors the knee-chest position as delaying labor until a case of funis presentation can receive the proper treatment. For this he advises either abdominal or external version, repeated until the funis is caught up by one of the fetal limbs or version with one hand in the vagina and the other on the abdomen, using great care not to rupture the membranes. If the os is sufficiently large or dilatable the membranes may be ruptured high up to lessen the risk of prolapse and the cord replaced by a repositor or a hand introduced and version performed. Forceps may be used. Brady reports three cases of funis presentation and four of prolapse treated in one or other of the above ways, the child being saved in all but two of the cases of prolapse of the cord, in one of these the pulsation having stopped before he arrived. In funis prolapse, where the pulsations are so faint that the child cannot be saved, a natural labor should be allowed, provided the head or breech presents; but if there is a malposition of the fetus it should be delivered with the least possible risk to the mother, totally ignoring the child which is not viable.

GYNECOLOGY.

UNDER THE CHARGE OF

CHARLES BINGHAM PENROSE, M.D.,

ASSISTED BY

H. D. BEYEA, M.D.

The Sterilization of Catgut by Cumol.

Clark and Miller (*Johns Hopkins Hospital Bulletin*, Nos. 59 and 60, 1896) after a thorough bacteriologic investigation and a practical experience of a year with the cumol method of the sterilization of catgut, conclude that it is the most reliable. They state that many of the methods hitherto practised are unreliable, as

has been shown by the outbreaks of infection which have been traced either by direct bacteriologic investigation, or by the strongest circumstantial evidence to the catgut used in the cases. Catgut received from the manufacturer is rarely infected with pyogenic organisms, which accounts in a great measure for the absence of infection following its use, where prepared by the most questionable of methods. At least three outbreaks of infection in surgical cases have been attributed to catgut. The first, in 1879, in the service of Zweifel, which was certainly traced by Koch to the suture material by a careful bacteriological study.

Kocher, in 1881, after a very superficial study of the germicidal power of juniper-oil, introduced it as a sterilizing medium. Later, a large number of cases in his hospital service became infected, and Kocher, feeling that he had such strong evidence against the catgut employed in the cases, published an article against its use in any form, entitled "Away with Catgut."

In January, 1893, a very serious reign of infection occurred in the gynecological wards of the Johns Hopkins Hospital, which was believed to be due to catgut prepared by boiling in alcohol under pressure.

The most perfect means of sterilization of catgut for surgical purposes is, unquestionably, by heat. Until the methods of Benckisser and Reverdin, (1881), it was considered impossible to raise any form of animal ligature material to a temperature sufficient to render it sterile without making it brittle. Reverdin demonstrated that it was not the oil, as previously supposed, but the hygroscopic water in catgut, which caused it to become brittle when heated. If this is driven off by dry heat at a temperature of 70° C., it can be carried safely up to a temperature of 250° C., without impairing its integrity. The complicated apparatus, consisting of a hot-air oven and a thermo regulator, however, prevented the general adoption of the methods of these writers.

Brunner found that the boiling-point of xylol was 136°–140° C., and at once adopted it as a sterilizing medium, but Krönig found spores occasionally present in catgut, which were more resistant than the anthrax spores with which Brunner had experimented. After a further research Krönig found that the boiling point of cumol, a hydrocarbon compound, ranged between 168° and 178° C., and substituted it for xylol. After a careful review of Krönig's article, his method was adopted in the gynecological department of the Johns Hopkins Hospital. Krönig's method is as follows:

(1) Roll the catgut in rings.

(2) Dry it in a hot-air oven or over a sand bath for two hours at 70° C.

(3) Heat it in cumol to a temperature (165° C.) a little short of the boiling-point, for one hour.

(4) Transfer it to petroleum benzene for permanent preservation, or, if desirable, leave it in benzene for three hours, and transfer to sterile Petri dishes.

A bacteriologic study of this method by the writers shows that the sterilization by this method is perfect, but that the transferrence from boiling cumol to benzene is open to serious objection. Clark and Miller have found from this investigation that benzene is not a germicide, also that it cannot be rendered sterile by heat without danger, and, therefore, have found it necessary to modify the method of Krönig as follows:

(1) The catgut, twelve strands, is rolled in a figure-of-eight form, so that it can be slipped into a large test-tube.

(2) Bring the catgut up to a temperature of 80° C., and hold it at this point for one hour.

(3) Place in cumol, which must not be above 100° C., raise it to 165° C., and hold it at this point for one hour.

(4) Pour off the cumol, and either allow the heat of the sand bath to dry the catgut, or transfer it to a hot-air oven, at a temperature of 100° C., for two hours.

(5) Transfer the rings with sterile forceps to the test-tubes previously sterilized, as in the laboratory.

In drying or boiling, the catgut should not come in contact with the bottom or sides of the vessel, but should be suspended on slender wire supports, or placed upon cotton loosely packed in the bottom of the beaker glass.

Congenital Erosion and Split of the Cervix Uteri.

Penrose (*American Journal of the Medical Sciences*, May, 1896) calls attention to a condition of the cervix uteri in virgins and sterile women, which he believes is not generally recognized,—a congenital erosion and split. He has been able to find only two papers upon this subject in the literature,—Leopold, in 1872, and Fischel, in 1880 (*Archiv für Gynäkologie*, Bd. xvi). Fischel found in a series of investigations on the cervices of infants, still-born or who had died soon after birth, a condition which had not been described,—the occurrence of erosions. On twenty-eight cervices examined he found ten erosions. The surface of the erosion was covered with a single layer of cylindrical epithelial cells. On the ends of the papillæ the cylindrical was replaced by a flatter, more cuboidal one, but everywhere the layer was single. There was no transition form between these cells, the line of demarcation was always sharply defined. The glands opened between papillæ, and into these the columnar epithelium dipped down. He concludes that in almost 36 per cent. of new-born infants the vaginal cervix from the external os towards the vaginal fornices is covered more or less extensively with mucous membrane, which, from the form of its epithelium, from its less papillary character, and from its possession of mucous glands, must be regarded as a direct continuation of the cervical mucous membrane. The dividing line between the epithelium of the vagina and that of the uterus does not lie, he says, as we are led to believe by all previous investigators, at the outermost end of the cervical canal, but may be situated even on the external vaginal surface of the cervix, more or less high, towards the vaginal fornices. For this condition, Fischel adopted the name congenital histological ectropion. He accounts for the formation of this ectropion by the theory that after the formation of the uterus and vagina, by the union of the lower segments of the ducts of Müller, which are lined by simple columnar epithelium, a change begins at either end in the mucous membrane. In the uterus this change consists in a development of a glandular system, while in the vagina, beginning at the urogenital sinus, the columnar epithelium gradually changes into the squamous variety. At the termination of intra-uterine life this change should have reached the external os, but owing to the varying rapidity with which it progresses in different individuals the point which it reaches varies. Fischel says it must be acknowledged that erosions occur in adults when the individual has received a predisposition to it during the period of her development. He states that he is able to show a photographic representation of the cervix of a new-born infant which presents an inferior degree of this condition. The separation of the lips extended through the lower two-fifths of the cervix.

Penrose reports three cases of disease of the cervix in young women, which he believes may be explained by the presence of the congenital erosion described by Fischel. In the first case the patient was 25 years of age. She had suffered for five years with profuse leucorrhea, backache, and left ovarian pain. It was most probable that she was a virgin. The vaginal cervix was mushroom-shaped, the

face of the cervix projecting on all sides beyond the portion which corresponds to the stalk of the mushroom. Upon the face of the cervix was several patches of erosion. The cervix was amputated, and microscopical sections showed a condition resembling that described by Fischel. The differences between the condition found in this case and that present in a case of bilateral laceration and ectropion he enumerates as follows: In laceration there is a history of pregnancy. The face of the cervix is oval, the antero-posterior axis being longer. The angles of the laceration are marked either by a depression on each side of the apparent external os, or by a palpable plug of cicatricial tissue. The ectropion is antero-posterior, there is no lateral ectropion. In the above case there had been no pregnancy. The face of the cervix was round, plane, or very slightly uniformly convex. There was no indication of any angle of laceration, macroscopically or microscopically. The cervix was mushroom-shaped. The ectropion is lateral as well as antero-posterior. He says it is probable that many of the erosions not caused by cervical catarrh, which are found in young girls, may be explained by Fischel's theory. When, however, the congenital erosion is present, and persists over the greater part of the vaginal cervix, as in one of Fischel's cases, the condition described in the case above may result, and symptoms will be caused by it which are similar to those following bilateral laceration of the cervix. The writer has observed a similar condition in two other cases. The proper treatment he believes is amputation of the cervix.

PATHOLOGY.

UNDER THE CHARGE OF

JOHN GUITÉRAS, M.D.,

ASSISTED BY

JOSEPH McFARLAND, M.D.

A New Method of Immunizing Horses for the Purpose of Producing Diphtheria Antitoxic Serum.

Pawlowsky and Maksutow (*Zeitschrift für Hygiene*, Band xxi, Heft 3, p. 485) suggest a new method of immunizing horses by which not only much time is saved, but the natural susceptibility, which often brings about the unexpected and premature death of the animal, is also overcome.

The method consists of injecting the horses with considerable-sized doses of antitoxin (50 to 100 cubic centimetres), and then injecting large doses of toxine at rather frequent intervals. By such treatment, the experimenters were able to produce an antitoxic serum each cubic centimetre of which contained 250 Behring units in forty days.

Whooping-Cough Parasites.

Kurloff (*Centralblatt für Bakteriologie und Parasitenkunde*, April 25, 1896, Band xix, Nos. 14 and 15, p. 513) describes certain protozoan parasites which he discovered in the expectoration of whooping-cough, by the use of the old-fashioned

methods. Kurloff claims that the discovery of these parasites has been hindered by the staining methods, and that it was by rejecting them and using the sputum in its natural condition and examining it with a high power and closed diaphragm upon the warm stage of the microscope that his attention was first directed to the peculiar bodies.

The parasites are of animal nature, classified among the protozoa, and appear as ameboid ciliated bodies. The encysted forms are surrounded by dense resisting capsules.

The organisms do not seem to have been cultivated artificially, and their pathogenesis has not been demonstrated by animal experiments.

The Culture of Ameba upon Solid Media.

Celli (*Centralblatt für Bakteriologie und Parasitenkunde*, Band xix, Nos. 14 and 15, April 25, 1896, p. 536) finds the most appropriate substance for the purpose to be a jelly made from fucus crispus, similar to agar-agar jelly. The medium should be strongly alkaline. When one is familiar with the appearance of the ameba upon the medium, it need not be filtered, but can be at once poured into Petri dishes and allowed to solidify. When, however, it is to be employed for the hanging drop, it must be filtered. It is almost impossible to get cultures of ameba entirely free of bacteria. To isolate the individual species of ameba is, however, not difficult. The most successful method was by allowing the organisms to develop upon a Petri dish until the encysted stage was arrived at, then to transfer them to a hanging drop, and isolate either directly with the platinum wire or by successive dilutions.

Animal Life without Bacteria in the Alimentary Canal.

Nuttall and Thierfelder (*Zeitschrift für physiologische Chemie*, Band xxi, Hefte 2 and 3), in order to solve the question originating with Pasteur in 1885, whether or not bacteria were indispensable to digestion and life, performed an interesting experiment. A perfectly sterile chamber was prepared. It consisted of a bell-glass provided with ventilating apparatus and in connection below with a cylindrical glass vessel containing water covered with a film of oil. The floor to be occupied by the animal was made of wire netting.

The first idea of the experimenters was to use chickens, but as these are often infected in the egg, this was abandoned and the guinea-pig, which is quite active when born and subjects itself readily to artificial feeding, was selected.

The guinea-pig was removed from the mother by Cesarean section, done under the most antiseptic precautions, and placed by means of sterile forceps upon the wire floor of the sterile chamber. For a short while it lay still, then began to lick itself, and soon became dry and happy. In twelve hours it began to drink the sterile milk provided for it. The little animal lived in this manner for eight days, after which it was killed, a carefully aseptic autopsy performed, and the contents of the digestive tract bacteriologically examined. It was found to be perfectly sterile. The experimenters conclude from this that animal life is possible without bacteria in the digestive tract.

Upon the Specific Immunity-Reaction of the Typhoid Bacillus.

R. Pfeiffer and W. Kolle (*Zeitschrift für Hygiene*, Band xxi, Heft 2, February 21, 1896). The described experiments indicate that in the blood-serum of

typhoid convalescents there exist substances which, when introduced into the bodies of guinea-pigs in very small quantities in combination with the living typhoid bacilli, act upon the bacteria so as to produce their death and solution.

The bactericidal activity of the serum is not to be explained as depending upon the existence of a preformed bactericidal substance in the serum, for in such case one must conclude that in consequence of the introduction of the serum into guinea-pigs a reaction occurred in the organism of the guinea-pig whereby the inactive "anti-bodies" in the serum were transformed into active specific bactericidal modifications.

Active antitoxic bodies are not demonstrable in the blood-serum of typhoid convalescents. The serum of normal human individuals and those suffering from various diseases, exhibits a definite activity against the intraperitoneal typhoid infection of guinea-pigs, but a qualitative as well as a quantitative difference exists between the serum of normal individuals and typhoid convalescents.

The quantitative difference is shown by the fact that 20 to 100 times the dose of normal serum is required to accomplish the same effect as that manifested by the typhoid serum. The qualitative difference of both serums is characterized through the absence of a specific activity of the normal serum.

The activity of the bactericidal substance of the typhoid-convalescent serum is specific,—*i.e.*, pertains exclusively to the species of the typhoid bacillus, not to similar bacilli, and in consequence can be employed for the differentiation of related and similar bacilli. The alteration in the blood can also be made use of to make certain the diagnosis of typhoid in patients already convalescent.

The demonstration of the specific bactericidal substance in the serum of typhoid convalescents is a further proof of the specific etiological *rôle* played by the typhoid bacillus in the production of the disease.

In the serum of goats immunized to increasing doses of living or killed typhoid bacilli (from agar-agar cultures), a specific bactericidal substance like that found in typhoid convalescents can be demonstrated. As yet, however, it has not been obtained in sufficient quantity in the blood of the goat to make its therapeutic employment upon man a very hopeful future remedy.

Antitoxic bodies are not demonstrable in the blood-serum of the immunized goats.

DERMATOLOGY.

UNDER THE CHARGE OF

LOUIS A. DUHRING, M.D.,

ASSISTED BY

M. B. HARTZELL, M.D.

The Treatment of Intertrigo by Chromic Acid.

The resemblance of intertrigo to the maceration occurring in hyperidrosis of the soles led Brault to employ chromic acid in the treatment of the former affection (*Annales de Dermatologie et de Syphiligraphie*, No. 4, 1896). In cases in which there is much irritation, it is better to apply for a time moist dressings of some mild antiseptic before using the chromic acid; in the absence of irritation the

treatment with the acid is commenced at once. Before making the applications the affected parts should be carefully washed and dried; they may then be brushed over with a 3-per-cent. solution of chromic acid, some inert powder being afterwards applied. These applications have seemed to the author not only to produce a rapid cure, but to prevent, better than any other remedy, relapses by producing a kind of tanning of the skin.

A Case of Sarcoma of the Skin successfully treated by Arsenic.

Pospelow reports (*Archiv für Dermatologie und Syphilis*, Band xxxiv, Heft 2) a case of sarcoma in which the use of arsenic in increasing doses was followed by the complete disappearance of the tumor. The neoplasm, which was situated upon the nose, had been excised, but promptly returned after six weeks. New lesions beginning to appear upon other parts of the face, further surgical treatment was deemed useless, and recourse was had to the internal use of arsenic. The drug was prescribed in the form of Asiatic pills, each containing one-twelfth grain, and of these at first one, finally nine, were taken daily. One month after beginning this treatment the tumor was decidedly smaller, and the secondary lesions were much flatter and apparently undergoing retrogression. These large doses of arsenic were well borne, and occasioned no disturbance upon the part of the digestive tract. At the end of ten months the cure was apparently complete. The author emphasizes the necessity for perseverance in the treatment, since the effects of the arsenic only appear slowly.

A Case of Erythematous Lupus cured by Injections of Lamb Sfrum.

At the *séance* of January 9, 1896, of the Société Française de Dermatologie et de Syphiligraphie (*Annales de Dermatologie et de Syphiligraphie*, No. 1, 1896), Legrain reported a case of erythematous lupus of the face cured by injections of serum obtained from the lamb. The disease had been treated for more than a year with the local applications usually employed in such cases, without success. Potassium iodide had been given internally without effect, and linear scarifications, while producing a slight improvement, had not been of more than transient benefit. Two months after cessation of all treatment two injections of lamb serum, of ten cubic centimetres each, were given at intervals of five days. Three days after the first injection the patches were paler, and ten days after the second they had disappeared without leaving any trace.

A Clinical and Experimental Study of the Origin of Pelade (Alopecia Areata).

In a preliminary paper upon the origin of alopecia areata (*Annales de Dermatologie et de Syphiligraphie*, No. 3, 1896) Sabouraud formulates the following conclusions:

(1) Pelade is a contagious disease.

(2) The extension of pelade is marked by the appearance of a special form of hair,—the club-shaped peladic hair.

(3) This hair appears with the disease, disappears at the same time that it ceases to extend, and reappears with the renewal of activity. Where the malady is active it is never wanting.

(4) The importance of this hair is considerable from a diagnostic, prognostic, and therapeutic point of view.

(5) The microscopic examination of the hair shows that its special form is due to a progressive atrophy of the papilla which forms it.

(6) The histological examination of the hair separates pelade clearly from the cryptogamic tineas.

(7) Microbic infection of the peladic hair is far from being constant.

(8) The microbes which are found in the hair are diverse; are known as being found habitually upon the non-peladic scalp; are found only in peladic hairs which show evidence of papillary alteration anterior to the microbic invasion.

(9) Consequently none of these microbes, almost all of which have been described by various authors as specific, can have any causal importance in the disease.

The Anatomy of Trichophytosis.

As the result of his study of the various forms of trichophytosis, WAELSCH reports (*Archiv für Dermatologie und Syphilis*, Band XXXV, Heft 1) as follows:

The trichophyton tonsurans grows through the cortex of the hair, upward and downward, for a variable distance, but spares the hair-bulb. It develops in the lower corneous layers, as well as in the cells of the hair-follicle in process of cornification.

By its growth in the skin the fungus produces inflammation, which is indicated by exudation on the surface, proliferative processes in the epithelial layers, and affections of the follicles and their appendages, – folliculitis, perifolliculitis, and eventually destruction of the follicle.

The severity of the inflammation, especially the depth to which it penetrates, is dependent upon the anatomical structure of the parts affected. Where the follicles are superficial the inflammation will be less than where they are deep-seated. Other elements determining the degree of inflammation are the susceptibility of the individual and the virulence of the fungus, both of which vary. The presence of hyphomycetes alone is sufficient to cause severe inflammatory phenomena, and to ascribe severe inflammation to a mixed infection with staphylococci is not justifiable.

From a pathologico-anatomical point of view all the disease processes in the various forms of trichophytosis are the same, varying only according to the anatomical structure of the affected parts, the susceptibility of the individual, and the virulence of the fungus.

Erythema Nodosum of Syphilitic Origin.

MM. BEURMANN and CLAUDE, in a paper upon this subject (*Annales de Dermatologie et de Syphiligraphie*, No. 4, 1896), present the following conclusions:

Erythema nodosum, a variety of polymorphous erythema, occurs frequently in the course of known infectious maladies as a secondary affection. Primary erythema nodosum results probably from a latent infection.

Cutaneous manifestations reproducing with absolute fidelity the clinical type of erythema nodosum are met with in the course of syphilis. This erythema may be due to a coincidence, and may result from some infection superadded to syphilis; but it is most frequently determined by syphilis itself.

There exists between syphilitic erythema nodosum and gummata of the skin and subcutaneous tissues a series of intermediate affections producing between these two kinds of lesions an insensible transition, and showing that between these two clinical types there is only a difference in intensity in the anatomo-pathological process.

MISCELLANEOUS.

VACANCIES IN THE MEDICAL CORPS OF THE UNITED STATES ARMY.

THERE are at present three vacancies in the Medical Corps of the United States army, and it is expected that at least three more will occur during the present year. As usual, an army medical board will meet in Washington early in October for the examination of candidates. The requirements for admission to the Medical Corps are stated in a circular issued by the surgeon-general of the army, dated May 21, 1896, and approved by the Secretary of War, as follows:

"Permission to appear before the board is obtained by letter to the Secretary of War, which must be in the handwriting of the applicant, giving the date and place of his birth and the place and State of which he is a permanent resident, and enclosing certificates, based on personal acquaintance, from at least two reputable persons as to his citizenship, character, and habits. The candidate must be a citizen of the United States, between 22 and 29 years old, of sound health and good character, and a graduate of some regular medical college, in evidence of which his diploma will be submitted to the board. The scope of the examination will include the morals, habits, physical and mental qualifications of the candidate, and his general aptitude for service; and the board will report unfavorably should it have a reasonable doubt of his efficiency in any of these particulars.

"The physical examination comes first in order, and must be thorough. Candidates who fall below sixty-four inches in height will be rejected. Each candidate will also be required to certify 'that he labors under no mental or physical infirmity or disability which can interfere with the efficient discharge of any duty which may be required.' Errors of refraction, when not excessive, and not accompanied by ocular disease, and when correctable by appropriate glasses, are not causes for rejection.

"The mental examinations are conducted by both written and oral questions, upon,—

"(1) Elementary branches of a common school education, including arithmetic, the history and geography of the United States, physics, ancient and modern history, and general literature. Candidates claiming especial knowledge of the higher mathematics, ancient or modern languages, drawing, analytical chemistry, or branches of natu-

ral science will be examined in those subjects as accomplishments, and will receive due credit therefor according to their proficiency.

"(2) Professional branches, including anatomy, physiology, chemistry, hygiene, pathology and bacteriology, therapeutics and materia medica, surgery, practice of medicine, obstetrics, and the diseases of women and children.

"Examinations will also be conducted at the bedside in clinical medicine and surgery, and operations and demonstrations will be made by the candidates upon the cadaver.

"Hospital training and practical experience in the practice of medicine, surgery, and obstetrics are essential to candidates seeking admission to the Medical Corps of the army, who will be expected to present evidence that they have had at least one year's hospital experience or the equivalent of this in practice.

"To save unnecessary expense to candidates, those who desire it may have a preliminary physical examination and a mental examination in the 'elementary branches of a common school education,' by a medical officer of the army stationed most conveniently for this purpose, who will act under instructions from the Medical Examining Board."

AMERICAN ORTHOPEDIC ASSOCIATION.

At the annual meeting of the American Orthopedic Association, held at Buffalo, May 19, 20, and 21, the following officers were elected: Dr. Samuel Ketch, of New York, president; Dr. H. M. Sherman, of San Francisco, first vice-president; Dr. W. R. Townsend, of New York, second vice-president; Dr. E. G. Brackett, of Boston, treasurer; Dr. John Ridlon, of Chicago, secretary.

SECOND PAN-AMERICAN MEDICAL CONGRESS.

A meeting of the Second Pan-American Medical Congress will be held in the City of Mexico, November 16, 17, 18, and 19, 1896. The Section on Obstetrics, Gynecology, and Abdominal Surgery would be glad to have those interested in these subjects, and who will go to present papers (may be read in the English language) in accordance with the rules and regulations. Address: Seccion de Obstetricia, de Ginecologia y Cirugia Abdominal. *Secretario de la Seccion*, Hugh Hamilton, M.D., No. 212 South Second Street, Harrisburg, Pa., U. S. A.

BOOK NOTICES.

SYSTEM OF SURGERY. Edited by FREDERIC S. DENNIS, M.D., Professor of the Principles and Practice of Surgery, Bellevue Hospital Medical College, etc., assisted by JOHN S. BILLINGS, M.D., LL.D. (Edin. and Harv.), (D.C.L. Oxon.), Deputy Surgeon-General United States Army. Philadelphia: Lea Brothers & Co., 1896.

The third volume of this system deals with the surgery of the larynx, tongue, jaws, teeth, salivary glands, chest, eye, ear, skin, and genito-urinary system and with syphilis.

The surgery of the larynx and throat, by Dr. Delavan, begins with a description of the methods to be employed in examinations of the larynx and throat, and is followed by a systematic account of the various surgical affections of these organs. The treatment of foreign bodies in the air-passages, the writer says, is one of the most difficult problems in surgery, the statistics, however, being slightly in favor of operative interference. Much ingenuity will be called for in many cases. If the foreign body has passed into the trachea, a recent recommendation is the introduction of one of O'Dwyer's tubes, especially constructed for such cases, in the hope that it may be expelled. Tracheotomy, followed by an attempt to remove the foreign body at once by suitable forceps, is advised. The author does not allude to the procedure, often adopted by necessity, of performing tracheotomy, and waiting until the object becomes loosened, when it will be coughed up.

The surgery of the mouth and tongue is described by Dr. H. H. Mudd, and the diseases of the salivary glands by Dr. Charles B. Porter. The subject of the surgery of the neck, by Dr. Willard Parker, is introduced by a description of the development of the part, which aids materially in the understanding of the diseases to which it is liable. The presentation of the subject of tumors of the neck, while brief, is very complete. The editor, Dr. Frederic S. Dennis, has contributed a valuable chapter on surgical injuries and diseases of the chest. The outlook of the operation of pneumotomy is said by the writer to be encouraging, although but few cases have so far been recorded.

The method of reaching the posterior mediastinum, in order to deal with tumors, abscesses, enlarged glands, and for the removal of foreign bodies, proposed by Bryant, is given in full. The status of this operation is concisely expressed in the following propositions:

(1) That when other means have failed, attempted relief from esophageal or bronchial obstruction is justifiable by the posterior mediastinum.

(2) That below the arch of the aorta the esophagus is reached

better from the right side; above the arch it can be reached from either, though better from the left side.

(3) That the attempted removal of obstructions situated below the body of the ninth vertebra is not justifiable, owing to the greater difficulty and danger of exposing the esophagus at that situation.

(4) That the posterior entry to the mediastinum is more easily, quickly, and safely accomplished than that to the anterior, and offers better results than does the latter method of entry.

An excellent epitomization of the diseases of the eye has been given by Dr. G. E. de Schweinitz. The operative surgery of the eye is described by Drs. Henry D. Noyes and John E. Weeks. Dr. Gorham Bacon contributed the chapter on the surgery of the ear.

The surgical diseases of the jaws and teeth have been well presented by Dr. Louis McLane Tiffany. The chapter on the surgical diseases of the skin, by Dr. W. A. Hardaway, is concise but modern. One statement in particular is well worth quoting. In speaking of the treatment of boils, the author says, "None of the ordinary forms of poultices should ever be applied, as they encourage the formation of secondary boils."

The surgery of the genito-urinary system, by Dr. J. William White, assisted by Dr. William H. Furness 3d, is the largest contribution in the book, and comprises 332 pages. The subject is thoroughly covered, and the most recent teachings are presented. A good epitomization of the use of the cystoscope is given. A preference is expressed for litholapaxy over other forms of operating for vesical calculi, even in young children. The surgery of the prostate gland is fully discussed and the claims of castration in prostatic hypertrophy presented.

The work concludes with a chapter on syphilis, by Dr. R. W. Taylor. Dr. Taylor is a well-known authority on this subject, and the present contribution is quite up to the high standard observed in the writings of this author. The work is well illustrated, many of the plates being in colors. The brief outline of the contents above described will give an idea of the scope of the work, and the names of the authors are a sufficient guarantee of the character of the contents. The estimate of the first and second parts, expressed in the MAGAZINE, may be repeated of this one.

A TEXT-BOOK ON NERVOUS DISEASES. By American authors. Edited by FRANCIS X. DERCUM, A.M., M.D., PH.D., Clinical Professor of Nervous Diseases in the Jefferson Medical College of Philadelphia, President of the American Neurological Association. Philadelphia: Lea Brothers & Co., 1895.

The appearance of a new text-book on nervous diseases, including among its authors twenty-two of the best-known neurologists of America is a noteworthy event. The contributors to this work are Dr. N. E. Brill, Dr. Charles W. Burr, Dr. Joseph Collins, Dr. Charles L. Dana, Dr. F. X. Dercum, Dr. E. D. Fisher, Dr. Landon Carter

Gray, Dr. C. A. Herter, Dr. George W. Jacoby, Dr. W. W. Keen, Dr. Philip Coombs Knapp, Dr. James Hendrie Lloyd, Dr. Charles K. Mills, Dr. S. Weir Mitchell, Dr. Charles A. Oliver, Dr. William Osler, Dr. Frederick Peterson, Dr. Morton Prince, Dr. G. E. de Schweinitz, Dr. Wharton Sinkler, Dr. M. Allen Starr, and Dr. James C. Wilson. The editor has exercised unusual care in the assignment of subjects, and therefore each writer appears at his best. Thus, Dr. Dercum contributes the article on neurasthenia; Dr. Lloyd on hysteria; Dr. Sinkler on choreiform affections; Dr. Osler on diseases the direct or indirect result of infection; Dr. Mills on the anatomy of the cerebral cortex and the localization of its functions; Dr. Starr on focal diseases of the brain; and Dr. Gray on epilepsy.

The work opens with an excellent chapter on general considerations, by Dr. S. Weir Mitchell and the editor, and the examination of the eye from the stand-point of the neurologist, by Dr. C. A. Oliver. The article on hysteria is the most systematic presentation of the subject that has yet appeared. The writer deprecates the view taken by many authors that hysteria is a protean disease having no identity of its own, and emphasizes the importance of regarding it as a distinct morbid entity, with a natural history and with a train of symptoms that are subject to well-defined laws. He also calls attention to the frequency of hysteria in males, a fact too frequently overlooked. The article on the anatomy of the cerebral cortex and the localization of its functions is comprehensive, embraces the latest ideas, and is a forcible exposition of the author's own views on the subject. Dr. Starr, in dealing with the subject of brain tumors, clearly defines the indications for operative treatment, and shows by a table of 1121 cases that only 7 per cent. of such growths are open to operation. The chapter on epilepsy seems to be disproportionately brief, a large part of the space being devoted to tables dealing with the details of forty-four cases which had been subjected to operation. Of these cases only two appear to have been cured; certainly not a very brilliant record for this method of treatment. The article on arrested development, malformations, and hydrocephalus, by Dr. N. E. Brill, is worthy of special comment, and is probably the best exposition of the subject to be found in the English language.

The articles on the trophoneuroses are thorough, and include adequate mention of the most recent methods of diagnosis and treatment.

Another noteworthy feature of the work is the excellent typography and abundance of illustrations, most of which are original.

Therapeutics of Infancy and Childhood. By A. Jacobi, M.D., Clinical Professor of the Diseases of Children in the College of Physicians and Surgeons (Columbia University), New York, etc. Small 8vo, pp. 508. Philadelphia: J. B. Lippincott Co., 1896.

Dr. Jacobi has wisely called this volume Therapeutics of Infancy and Childhood, because, while the various diseases of these periods are discussed, the author keeps so constantly in mind "what shall we

do for them?" that no other title could have given a fair idea of the motive of the volume. Dr. Jacobi declares himself a believer in medicines: "Advancing years and experience during a period of increasing exactness in medical methods have rather strengthened my belief than otherwise. What the knife is to the surgeon, drugs are to the physician. The knife does not make the surgeon, nor do medicines make the physician; both, however, are indispensable." The author thus takes a position, or rather keeps a position, which is in sharp contrast with that of some other members of the American Pediatric Society. For our own part, we think he is right.

The first chapter, on the feeding of sick children, evinces the author's wide experience and good judgment. It should be read by every one. We cannot review each chapter. Some of the subjects may appear slighted from the brevity with which they are treated; but the author's terse, pithy style conveys a vast amount of his knowledge in a few words. We commend the book heartily.

THE CARE OF THE BABY: A Manual for Mothers and Nurses. By J. P. CROZER GRIFFITH, M.D., Clinical Professor of Diseases of Children in the Hospital of the University of Pennsylvania; Professor of Clinical Medicine in the Philadelphia Polyclinic and School for Graduates in Medicine, etc. Philadelphia: W. B. Saunders, 1895.

The author states in his preface his desire to present a work that will be helpful to mothers, nurses, students, and practitioners of medicine. We would question the wisdom of attempting to make a single work serve so diverse a constituency, since it leads to rather advanced reading in some parts for the mother,—*e.g.*, the instruction that "the production of a misshapen pupil is proof that the wound of the eye is actually a penetrating one." The directions for everting the eyelid, and the offering of various prescriptions, may be a source of perplexity rather than of helpfulness to an anxious mother.

Aside from the exception taken, the work is exceptionally clear and complete, answering the questions so apt to present themselves to the prospective and actual mother. It would be fortunate if this work could be made the source of the fundamental knowledge the mother should have and so leave no place for the misstatements and fallacies that are so hard to unlearn. It is an admirable work and will doubtless be appreciated by the profession and laity. It is gotten up in attractive form.

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AUGUST, 1896.

A CASE OF VARICELLA GANGRENOSA, DIPHTHERIA, AND RUBEOLA OCCURRING AT THE SAME TIME.[1]

By J. P. Crozer Griffith, M.D.,

Clinical Professor of the Diseases of Children in the University of Pennsylvania.

Charles F., aged 22 months, was admitted to the Children's Hospital, Philadelphia, February 25, 1896, suffering with pneumonia. The family history was good, except that the father was just convalescing from pneumonia and looked phthisical. The child had always been healthy previously. On February 20 he began to have cough and fever. On admission to the hospital he had frequent cough, which appeared to be painful, fever and rapid and labored respiration. Physical examination upon the following day showed evidences of croupous pneumonia of the upper part of the left lung. By February 29 the consolidation had increased, and all the symptoms of pneumonia were well marked, and there were decided indications of meningitis. By March 2 the pneumonia was resolving and convalescence was established. The attack had been a severe one, and had threatened to be fatal.

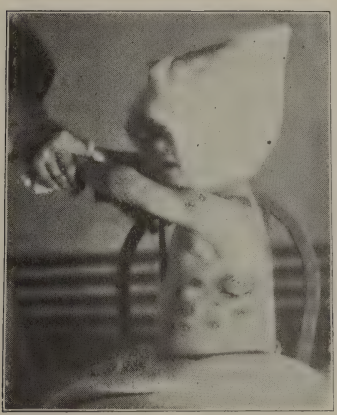
On March 14 the child developed slight follicular tonsillitis, and cultures showed the presence of the Klebs-Löffler bacillus. The general condition was, however, excellent, and the evidences of tonsillitis disappeared rapidly. On March 18 the rash of measles appeared, not preceded by rise of temperature, but five hours later the thermometer showed 104° F. On March 21 a vesicular eruption appeared, resembling that of varicella (which, like measles, was prevailing in the house at the time), but the vesicles increased rapidly

[1] Read before the Philadelphia County Medical Society, June 10, 1896.

in size until they were of a bullous character and rendered the diagnosis somewhat doubtful. On March 24 and 25 the child was examined by Dr. J. A. Cantrell, who agreed with me that the case was one of varicella gangrenosa. The course of the eruption from the beginning for the first ten days was much as follows: The rash appeared first as a vesicle of varicella. The vesicle rapidly increased in size, became somewhat bullous and burst, leaving an erythematous area having an appearance as of an emptied blister with the cuticle still preserved and drying over it. Most of these areas were not much larger than a split pea or a ten-cent piece, but some were as large as a quarter of a dollar. In a few days ulceration began in some part of the erythematous area, and extended, forming a cup-shaped, excavated ulcer, oval or rounded in character, with ragged edges and about two lines in depth. From some of these ulcers an ichorous pus was discharged, while over others large dark-brown or black-red crusts formed. Two large lesions which were present over the right scapula and two over the posterior surface of the left arm showed a tendency to coalesce. Early in the attack the trunk and arms were principally involved, and there were but few lesions on the head and none on the lower extremities. But little inflammatory areola surrounded the ulcers, there was little induration, and the ulceration was, as stated, not deep.

This condition did not continue. New vesicles formed and ulceration extended, and on March 31 it was noted that erythematous spots, rapidly changing to vesicles but not yet ulcerated, were now forming on the legs, and that ulceration was extending over the scalp, forming superficial lesions the size of a twenty-five-cent piece, and larger without much crust. Ulcers were present on the neck and face, as well as elsewhere over the body. On April 2, twelve days from the first development of the eruption, the child was losing ground rapidly, and was very weak. There were a great many large superficial ulcerations scattered over the body, but worst on the scalp and on the back. The inflammatory areola was more marked in places, but not generally so. The child was having sinking attacks apparently from cardiac failure, with shallow and labored respiration and some râles in the chest. Fever of moderate severity had been present from the first onset of the tonsillitis on March 14. He died on April 4, with symptoms apparently of broncho-pneumonia, although no physical examination was made owing to the extreme weakness of the child. The only interesting feature of the autopsy was the discovery of diphtheritic membrane in the trachea, although there was none in the larynx.

Varicella gangrenosa is unusual enough to warrant the report of



VARICELLA GANGRENOSA.

ROYAL COLLEGE OF SURGEONS OF ENGLAND
18 AUG 96
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the case as just given. The description of the disease dates from Hutchinson, although it was mentioned long before this. It appears to have been met with chiefly in England. German text-books make little or no reference to it, and it would certainly seem to be rare in this country. I saw a case within a couple of years in which one spot upon the abdomen developed into a large deep slough, but I have never met with so extensive ulceration as in the case now reported. The photograph which I present shows the appearance of the child when the disease was approaching its height. Unfortunately, the head-covering was not removed, through a mistake, and the ulceration of the scalp does not show.

The eruption in this case exhibited certain peculiarities differing from the rash of gangrenous varicella as ordinarily described. It did not merely proceed uniformly onward from a vesicle to an ulcer, but first became a vesicle, then usually a bulla, and then generally burst and dried as though this were to be the last of it. Then the ulceration began in the affected region. Again, although the ulceration was extensive, it did not go at all deeply,—not even through the entire thickness of the skin.

The continued development of new vesicles over so long a time was different from an ordinary case of varicella, in which the production of vesicles should have ceased much earlier.

It is probable that this ulcerative process is not characteristic of varicella alone, but may attach itself to other conditions where great debility exists. In the case reported, however, there seems little reason to doubt that the disease was primarily varicella, since this affection was prevailing in the hospital at the time, and the early appearance of the eruption was entirely that of chicken-pox.

It is interesting to note that this child seems to have suffered at one time from three infectious diseases,—diphtheria, rubeola, and varicella. The statement has been made that all post-mortem examinations upon cases of varicella gangrenosa have shown the presence of tubercle. No tubercle, however, was found in this case.

I regret that no bacteriological study of the pus from the ulcers was made. All the officers of the hospital were so overburdened at the time with the unusually large amount of severe sickness prevailing in the institution that this examination was neglected.

I have not entered at all upon the literature of the subject, since a very full *résumé* is contained in an article by Spivak and in a discussion of it by Cantrell in the "Transactions" of the Philadelphia County Medical Society for 1885.

THE USE OF DISPENSARIES IN TEACHING.[1]

By M. H. Fussell, M.D.,

Chief of the Medical Dispensary of the University of Pennsylvania.

It is not the purpose of this paper to deal with the pernicious multiplication of dispensaries, but to call attention to what appears to be the best manner of utilizing for teaching purposes the patients who attend the out-door service of the hospital of every medical school.

It has been my privilege to have been connected with the out-patient department of the Hospital of the University of Pennsylvania ever since I graduated in medicine.

Until the last few years the dispensary service was viewed as a good school of practice for the gentlemen in charge and was used by them for instruction of their private students, and for the purpose of feeding the wards and the clinical lecture-room. Much good work has been done there, but no routine use of the patients was made until Professor Tyson took the chair of clinical medicine. At that time the classes were so large and the ordinary material used was so scarce that it became necessary to utilize all the available material, and the medical dispensary was forced into the service.

In order that the material could be used to advantage numerous changes became necessary which have not only produced a good teaching service, but have enhanced the value of the clinic for purposes of observations. I am aware that much the same plan is used at other institutions, notably Johns Hopkins, from which institution we copied the plan of cards, but it has not seemed necessary to go into a comparison of methods, but rather to describe a valuable plan.

The service is in charge of a chief and four assistants, two clinical assistants, a recorder, and a microscopist.

The duty of the *recorder* is to take the histories of all cases. This not only hastens the work by saving time to the clinical assistant, but a very thorough history is obtained.

A set of stereotyped questions is asked of all patients, so that the histories are valuable for comparison.

The histories are taken on cards, seven by seven inches (Fig. 1),

[1] Read before the Association of American Physicians, Washington, May 1, 1896.

FIG. 1.

Whole No. . . . Medical No. . . . .

UNIVERSITY OF PENNSYLVANIA MEDICAL DISPENSARY.

Name . . . . . Age . . . Race . . . . .
Condition . . . . . Occupation . . . . . Admitted . . . . . .
Diagnosis . . . . . .
Family History . . . . . .
. . . . . .
. . . . . .
Previous History . . . . . .
. . . . . .
. . . . . .

instead of using a book. This allows the patient to be taken to any part of the building accompanied by his history without interfering with the histories of the other cases. These cards are numbered and filed according to number. The patient's name and number are then taken on a smaller card, which is indexed alphabetically. (Fig. 2.)

FIG. 2.

Name . . . . . .
No. . . . . .

MEDICAL DISPENSARY.

Besides these two cards the patient is given an ordinary dispensary card bearing his name and the number of his history. After the histories have been taken by the recorder the patients are transferred alternately to the two clinical assistants, who make a thorough physical examination of every case, whatever the history. They also prescribe the proper treatment and order the examination of blood, etc., where necessary. There are two clinical assistants, because too much time would be consumed if there was only one man to do all this work.

The duty of the microscopist is to examine the urine of *all* patients, the sputum if the patient has a cough, the blood, and the stomach contents.

The chief has general supervision, being consulted especially in all new cases and in those of unusual interest.

The machinery may seem cumbersome in the reading, but it works without a hitch. Each patient is given a thorough examination, so conspicuous by its absence in the usual dispensary. Many cases of unsuspected disease are discovered, and, I believe, but few patients get away without their condition being recognized, and above all, perhaps, it makes the material available for ward-class purposes.

Two methods are used in teaching the ward-classes:

The class is divided into several subsections, each subsection

being in charge of an instructor of clinical medicine, each subsection going in turn to the medical dispensary. Here each class is divided into two groups and each group is given a patient for examination. Preferably a patient is chosen who has never before been to the dispensary.

In using the first plan the students themselves are required, first, to take a good history, to facilitate which they are supplied with the same set of questions used by the recorder; second, to make their own physical examinations; third, endeavor to arrive at a diagnosis; and, fourth, suggest treatment. In all this the instructor is merely a mentor pointing out the best methods of procedure, but being careful to allow the students to do the work themselves. After the students have made their diagnosis the instructor goes over the case with them, points out the mistakes which they always make, shows them their omissions, and revises their treatment. The awkwardness which marks the handling by the students of their first case and the quickness by which they learn to go about the work proves at once the advantage of allowing the student to come in direct contact with the patient without the intervention of an instructor.

The second plan used, which is utilized only when patients are scarce, is for the recorder to take the history as usual; the patient is then sent to the ward class, where the instructor goes over the case, points out the various lesions, and dilates upon them more or less fully.

The superiority of the first plan is, I think, manifest. It brings the student in direct communication with the patient, it forces him to depend upon himself, and it brings him face to face with the patient just as he will be in the consulting room after graduation. Surely the more of such practical experience a student has before he leaves college the fewer initial mistakes he will make. Again, it saves him from a clinical lecture by the instructor. A ward class, I take it, should be used to familiarize the student with the methods and instruments used in making a diagnosis, not the least important of which is the taking of a history, and with the lesions found in diseased conditions. A lecture should be reserved for a clinical lecture-room, its proper place, and not be indulged in by the instructor. An advantage of selecting a patient who is new to the instructor as well as to the students is that it sharpens his powers of observation, forces him to make a thorough examination of all the organs, instead of dilating upon the most prominent lesion, or treating simply for the symptoms complained of. He is bound to do this if he does not desire to be tripped up, for there is no body of men who delight in catching their instructors in a mistake more than medical students.

When dispensary teaching supplements the clinical lecture, and is in turn supplemented by an opportunity to examine a series of cases such as heart lesions, lung lesions, etc., in the wards, I take it we will have an ideal method of teaching.

While the method I have described or some variation of it is used in some institutions, I am quite sure its use is not general enough. Usually an interesting case is selected and its special points shown. The ordinary cases of dyspepsia or bronchitis, etc., are entirely ignored for teaching purposes, and the student has frequently left college without ever having seen a case of dyspepsia or bronchitis, except from the benches of the clinic room.

Again, the negative results of a physical examination in those cases is just as advantageous to the student, even more so than the discovery of a heart murmur or a consolidation; for then he will be taught that all cases of palpitation of the heart are not due to organic heart-disease, and that all coughs are not due to phthisis.

THE FIBROID UTERUS, WHEN AND HOW TO OPERATE.[1]

By George Erety Shoemaker, M.D.,

Philadelphia,

Gynecologist to the Methodist Hospital.

The presentation of these two phases of the great subject of uterine fibroids will leave out much interesting matter, but it is proposed briefly to indicate what seems to the writer to be the best and most practical working plans.

When does a fibroma call for operation? The answers are different now from ten or even five years ago. It is not long since careful surgeons advised patients to temporize who had tumors reaching above the umbilicus, regardless of pain, providing the bleeding did not actually threaten death. They were told to await the menopause with its supposed relief. It is now known that the menopause, often deferred for six or eight years by the tumor, frequently does not stop the growth, while many tumors begin or increase about that time. Recently the writer removed, by total hysterectomy, a very painful fibroid uterus from a woman aged 48 years. She had not only had greatly prolonged and profuse periods, but had recently

[1] Read before the State Medical Society of Pennsylvania, May 20, 1896.

bled five months without cessation. Suppose that, when 40 years old, this woman had been told to await the menopause, would it have been good advice? She is now well. The improvements in technique of the last five years have lessened not only the primary mortality, but have made the risks of hernia less, have done away with traction on the stump and bladder interference, have made it possible to deal safely with small dissecting tumors which formerly could only be attacked by removal of the ovaries; and, finally, have made operations upon fat abdomens much more satisfactory. The advice to submit to operation is therefore much more frequently given. Size has no longer its former important position in deciding the question of operation. A tumor of the size of a duck-egg, growing forward low down, may by bladder displacement and ureteral irritation and pressure cause pain and distress out of all proportion to its size. If interstitial, and not, therefore, subject to removal from within the uterine cavity, the resultant bleeding may be excessive, and will very likely fail to be more than temporarily relieved either by medication or electricity; while curettage is very apt to disappoint in ultimate results. Although small subperitoneal tumors are not as likely as the submucous to cause bleeding, the writer has known them to give rise to months of constant flow. Small tumors, then, call for extirpation when local pressure and bleeding are persistent. In judging the amount of bleeding it is scarcely fair to consider it unimportant if the periods are prolonged beyond seven days and are free; if the flow recurs every two or three weeks, and if several napkins are required daily during the period. Few constitutions can endure this constantly, recurring drain without serious dyscrasia resulting, and it may become the physician's duty to interfere before the vitality of the patient and her capacity for future usefulness are exhausted.

What drugs may be employed first? Hydrastis fluid extract in doses of ten to thirty drops. Fluid extract of ergot in corresponding quantities at frequent intervals may be tried. It is usually difficult, however, to demonstrate any distinct permanent improvement from their use, inasmuch as the amount of bleeding varies spontaneously within considerable limits.

The claims of electricity have been urged for the treatment of pain and hemorrhage. While it is true that prolonged electrical treatment will lessen bleeding in many cases, it has been the writer's experience that, while the tumor remains, the bleeding will recur after a time, and the question of radical treatment will assert itself as at first. The writer has in mind particularly two cases in private practice where electricity in skilled hands failed utterly after months of application. When electricity is not used as a cautery, its power to

cause the disappearance of tumors must be considered chimerical. For excessive and persistent bleeding, therefore, regardless of the size of the tumor, removal offers the only certain cure, and in cases otherwise suitable is usually to be advised.

When tumors occupy the lower segment of the pregnant uterus and are of sufficient size to obstruct labor, or have so dissected up the pelvic floor that they cannot be drawn up by uterine contractions above the pelvic brim during labor, hysterectomy should be done in the early months. When with small tumors, otherwise harmless, salpingitis occurs, the uterus should be removed with the tubes.

Pain from fibroids is a symptom which usually becomes prominent only when the growth has attained considerable size. Pressure causes it, and also traction upon other structures, such as bladder, intestinal adhesions, stretched broad ligaments, and the like. While much can be done for the patient's temporary comfort by the knee-chest posture, hot irrigations, and other measures which relieve the mechanical or vascular pressure or tension, pain will frequently be the determining factor which calls for the removal of a growth.

Size alone becomes with many patients a serious matter, having a decided subjective influence on the mind and a marked effect on the capacity for healthful exercise or employment. As a summary, then, it may be said that, while the rule adopted for ovarian tumors, remove as soon as discovered, cannot be applied to small fibroids which cause no symptoms; all large or small painful bleeding growths, all those associated with septic inflammation or which are growing rapidly, all which are likely to obstruct labor, call for removal.

Again, a moderate but constant amount of bleeding may become a serious factor by preventing recuperation from some other condition. In early pulmonary tuberculosis—for example, when there is hope of restoration, if the drain from the tumor could be eliminated—the writer would operate for less bleeding than in a person otherwise in health. So, too, the presence of a moderately painful, or moderately bleeding, small tumor may prevent the cure of grave neurasthenia or some other disorder of the nervous system.

Should disease of the lungs, heart, or kidneys forbid operation?

In the writer's experience, patients with valvular heart-disease, if without atheroma, withstand operation well, provided there is good compensation in the heart muscle. An irregular or intermittent pulse is a far greater contra-indication for operation than a heart murmur. The use of strychnine and whiskey before the operation, careful preparation of the kidneys and skin, the avoidance of too severe preparatory purgation, the early supply of liquid nourishment by the bowel after the operation (*i.e.*, beef-tea or peptonized milk by

the rectum in the first twenty-four hours) will forestall the failure of a heart which might not otherwise stand a strain.

Hysterectomy should not be considered in advanced phthisis. In the incipient stages it may be indicated to remove a drain, and thus enable nature to defeat the enemy in detail.

Chronic coughs not due to phthisis will often disappear marvellously after the removal of abdominal tumors. In hopeless kidney disorganization with purulent urine, large granular casts, and constitutional symptoms no operation is advisable. It must be remembered, however, that solid abdominal tumors often predispose to kidney-disease by obstructing the ureter or interfering with bladder drainage, and unless the kidney lesion is too far advanced, relief of pressure and lessened kidney work may enable restoration to take place. The ureteral catheter has proved of use in determining the source of pus in the urine and the extent of disease in the kidneys separately.

In deciding the question of operation in renal cases some time must be taken to determine the amount of active kidney structure and the power of the patient to respond to improved conditions. She must be kept in bed for one or two weeks with daily bathing, mineral laxatives, abundant drinking water, and on a milk diet; the amount of urine and of urinary solids must be observed, specimens being withdrawn by catheter to avoid contamination with albuminous discharges. If under this *régime* and the administration of ½ grain sparteine, four times daily, or a capsule containing 2 grains caffeine, $\frac{1}{100}$ grain nitro-glycerin, $\frac{1}{30}$ grain strychnine, four times daily, the excretion of urine and urinary solids readily reaches the normal, operation may be done safely as far as the kidneys are concerned.

The removal of the tumor will lessen their load, while the danger of suppression of urine from ether is not great after the above preparation. The writer recently removed successfully under chloroform an epithelioma of the clitoris in a case where the urine after boiling showed one-fifth of its bulk of albumin before preparatory treatment began. The longer operation of hysterectomy would have been declined, however, in such a condition.

In brief, complicating disease of heart, lung, or kidney may contra-indicate operation, but when relief of symptoms is imperative, the somewhat increased risk should be explained to the patient and friends, and careful preparation and attention relied upon to meet difficulties if possible before they arise.

How shall the operation be done? A small submucous tumor can be shelled out of its bed. If multiple nodules exist, however, not amenable to intra-uterine treatment, total removal of the uterus is

indicated. A subperitoneal growth may often be shelled from its capsule with good results after the abdomen is opened.

Removal of the ovaries for the cure of fibroid is in general not a desirable operation in the writer's opinion. It does not always stop either the bleeding, the pain, or the growth. The fact that many fibroids continue to grow after the natural menopause is proof that their growth is not wholly dependent upon the ovarian and tubal functions. This operation itself is often difficult and dangerous, the ovary being spread out in a thin sheet or buried beneath the tumor and entirely out of reach. The tubes are tightly stretched over the tumor or diseased and adherent, some portions dipping down beyond the reach of safe ligation. The completion of a hysterectomy may be as easy as the removal of such tubes and ovaries, while the latter leaves the intestines and other abdominal organs still embarrassed by tumor pressure.

By far the best and safest method of hysterectomy, in the judgment of the writer, is by ligation through an abdominal incision, dropping the stump after cutting off the uterus at the neck. The peritoneum is brought together and stitched so as to bury all cut surfaces. If the cervix is removed also, iodoform-gauze drainage is secured by the vagina, the peritoneum being brought together over the gauze. The abdominal wound is closed without drainage, except in septic cases or where free capillary oozing proves troublesome, when the iodoform-gauze drain of Mikulicz adds to the patient's safety.

The writer has done hysterectomy for fibroid (1) by ligation from above the pubis, amputating and leaving the cervix; (2) by the vagina alone; (3) beginning through the vagina and finishing by ligation through the abdomen; (4) with the Kœberle constricting nœud, left on to hold the stump at the lower end of the incision; he has operated also (5) by the removal of ovaries and tubes; (6) by myomectomy or enucleation of the tumor through the abdominal incision, leaving the uterus; and (7) once where better methods were refused, by ligation through the vagina of the lateral blood-supply. Various operations have been observed in the practice of others with their immediate and remote results. Observation and experience lead him to the conclusion that, except for the small growths which can be removed with the uterus through the vagina (when the outlet is large and when the likelihood of complicating inflammatory disease of tubes and ovaries is small). The ligation method from above the pubis is the method of the present and of the future.

The use of the constricting nœud is probably easier for the beginner, and may be necessary where speed calls for the sacrifice of everything else, but its objections have practically banished it from the writer's practice.

IS THE THERAPY OF ANTITOXIN SERUM, NUCLEIN SOLUTION, AND THYROID EXTRACTS SO FULLY ESTABLISHED AS TO RECEIVE THE ENDORSEMENT OF THE PROFESSION?[1]

By Alexander McAlister, M.D.,

Camden, N. J.

The bacillus of diphtheria was discovered by Klebs in 1883. Cultures were made of it in the following year by Löffler; but the cultures did not produce all the symptoms of diphtheria. In 1887–1888 experiments were made by Roux and Yersin, of Paris, which fully demonstrated that the bacillus of Klebs was the true cause of diphtheria. Behring, with Fränkel and Kitasato, then discovered the antitoxin, and undertook the vaccination against this disease. This work was continued and perfected by Roux, with Martin and Chaillon, in Paris.

To Koch must be given the honor of laying the foundation of the discovery of the antitoxin of diphtheria, by his investigations of the bacillus of tubercle and of cholera.

The isolation of the diphtheria bacillus and its culture was the work of Löffler, his student.

Löffler, Roux, Yersin, and Martin, further investigating the disease, proved that it is not the mere presence of the bacillus that gives rise to all the symptoms of diphtheria, but the products of this microorganism,—viz., the ptomaines produced by it. Roux and Yersin fully proved this by separating the bacillus from the ptomaines, and subjecting the former to chemical and physiological experiments. They showed that diphtheria is a toxemia which differs from others in that the toxin acts as a ferment, and that when it is injected into living tissues there results a production of certain albuminoid bodies. Martin isolated these albuminous substances, and, subjecting them to alcohol, produced a proto- and dextro-albumose.

He injected rabbits with this, causing symptoms analogous to those of diphtheria.

Brieger, Franklin, Proskauer, and Wasserman have carefully studied the chemistry of the subject. The two former have obtained a white, amorphous powder, giving the reactions of albumin, by repeated precipitation of the culture-bouillon by means of alcohol and acetic acid.

The toxins, as well as the immunizing antitoxins, have been shown by Buchner to be in all probability the special products of

[1] Read before the New Jersey State Medical Society at Asbury Park, June 24, 1896.

bacterial organisms. Further experiments were made by Roux, Brieger, Fränkel, and Behring in this direction. It was shown by Brieger and Fränkel that a three weeks' old culture of diphtheria bacilli, which had been heated up to 70° C. for one hour, when injected into rabbits protected these animals against the virulent diphtheritic poison. Behring discovered several ways of immunizing animals. One method was to inject an animal with diphtheria bacilli, and then inject chloriodine. Agents that render individuals immune against infectious diseases are believed to act either by destroying the living cause of the disease or by retarding the growth of this agent, or by rendering innocuous the poisons developed by the germ in the innoculated subject, or by imparting to the victim a higher resisting power to the action of the poisonous material.

To Behring is due the credit of having discovered that by injecting the serum of the blood of animals rendered immune to certain bacteria into other animals, the latter will also be rendered immune to the same bacteria; and that not only does this injection protect against the living bacteria, but also against the toxins developed by the germs. This process of immunizing individuals against disease is to be carefully distinguished from that process—such as Jenner's for small-pox, and Pasteur's for hydrophobia and anthrax—which depends upon establishing in the individual attenuated bacteria cultures, and results in producing a milder form of the disease which is dreaded.

In the preparation of the antitoxin serum for diphtheria the principles laid down by Behring have been followed by Roux and all others who are now furnishing serums. Roux's method of obtaining the antitoxin serum is used in Philadelphia at present; it consists in introducing continuous and progressive doses of powerful toxin into a non-susceptible animal,—as the horse,—by which means the animal becomes saturated with an antitoxin produced in the system by the stimulated cells of its tissues and blood. There is some variation in the strength of the antitoxin serum derived from different horses and from different laboratories, hence the disappointments, in some cases, following the injection of the serum into human subjects affected with diphtheria.

The method of obtaining toxin fluid for injection into the animal which subsequently produces the antitoxin serum was much improved by Fernbach's method, which consists in allowing air to circulate over the culture-bouillon; this is accomplished by using the Fernbach flasks. Fernbach discovered that the liberation of metabolic products of micro-organisms corresponds to the degree of their vege-

tation, and is at its greatest height when the organisms are multiplying and decaying with great rapidity, the death of each bacillus liberating the ptomaines. The current of air also removes the effluvium from this decomposition. Erlich, Kossel, and Wasserman have obtained an immunizing serum from the blood of the goat, which has been used in some Berlin hospitals with apparently good results.

Aronson claimed to have prepared a serum by a special method which was 50 per cent. stronger than Behring's serum, but his claims have been disputed by Behring and Boer. The serum No. 3, prepared at Höchst, Germany, is the strongest yet produced. The No. 1 serum, prepared at the same place, has about fifty times the strength of Behring's normal serum.

To Löffler possibly belongs the credit of being the first one who rendered an animal immune to the virus of diphtheria.

The value of the work performed by the original investigators into the nature and treatment of diphtheria is incalculable, even should the results of the antitoxin treatment be not as brilliant as were hoped for by them. They have opened up paths to new fields of scientific investigation which give promise of rich harvests.

The consensus of medical opinion is tending to be favorable to antitoxin treatment, and nearly every day records new converts to it. That this method of treatment has met with opposition and set-backs is not to be wondered at when we consider the histories of past innovations in all branches of science.

There are four main obstacles to medical innovations such as the one under consideration; one is, too sanguine an expectation of great results; another, a want of a proper understanding of the limitations of the new discovery,—as, for instance, where a physician gives the antitoxin injection to a diphtheritic case, and is disappointed because the patient dies of a nephritis or a pneumonia; and the ignorance,—and we will all allow that there are not a few who graduate in medicine who should never have entered into the profession; and still another, the unfortunate prejudice and professional jealousy of some physicians towards another who has introduced into a community or locality a new method of treatment.

Since January 4, 1895, I have treated forty-five cases of diphtheria with antitoxin serum; twenty-five of the above cases I reported in detail[1] eighteen of them occurred in the West Jersey Orphanage for Colored Children, at Camden, all of which recovered. The other cases I treated in my private practice.

Diagnosis was confirmed by culture in all but eight of these

[1] University Medical Magazine, May, 1895.

cases, four of these were in the family of a physician, one died of laryngeal diphtheria, proving to my mind that they were all undoubted cases of diphtheria; the other four cases also occurred in one family, one of these children had marked laryngeal symptoms; they all recovered. Of the above forty-five cases, seventeen were laryngeal, twenty-eight faucial and nasal; six adults, thirty-nine children, ages varying from 17 months to 13 years. Most of the cases were injected within forty-eight hours after the diagnosis was made, excepting two of the laryngeal cases, one was seventy-two the other seventy-eight hours. In only five of the cases was it necessary to repeat the injection a second time, and in one only a third time. In this patient the membrane was present for six days; in the twenty-five reported I used twenty-five cubic centimetres of the serum for the first injection and fifteen cubic centimetres of this serum where I repeated it. In the last twenty cases I used twenty cubic centimetres of another make at each injection, where repeated half the quantity was used.

A word in regard to serum: I believe the serum produced in this country is equal in value to any that is made abroad.

Too much attention cannot be given to the preservative used in protecting antitoxin serum. Carbolic acid, which is extensively used by the German manufacturers of antitoxin, is a toxic and dangerous remedy, and is highly irritating to the kidneys and urethral tracts through which only it can be eliminated; serums preserved with carbolic acid also give rise to great irritation at the point of injections, and it is also objectionable on account of its rapid action in coagulating albumin, and in those sudden cases of death resulting from injections of antitoxin, it is to my mind probable that death might have been due to this cause.

Formalin, on account of its non-toxic and strong protective power, would be an ideal preservative, except for the fact that it coagulates or jellifies the serum after standing for a length of time.

Camphor is an uncertain antiseptic, having but feeble power, and is objectionable for the reason that it disguises by its strong odor the signs of decomposition and putrefaction, which would easily manifest themselves by their odor.

The best germicide and preservative is by all means trikresol; it is a very feebly toxic agent; as much as ten grammes (150 grains) having been injected into a guinea-pig without unfavorable symptoms, is without any irritating action on the kidneys, and has but very feeble action in coagulating albumin.

When you consider that in carbolic acid, in administering a large dose, as much as twenty grains may be administered in a feeble child

stricken unto death with the toxins of diphtheria, it is important that great care be exercised in not injecting a depressant or any irritant to the already diseased and over-taxed kidneys.

No local reaction followed the injection of antitoxin, general reaction in some of the cases, a rise of one or two degrees in temperature, pulse somewhat accelerated. In the mild cases improvement was noticed in ten hours, in the others from twenty-four to thirty-six hours; membrane changes in color and becomes detached. I had a small abscess follow in one case, it was incised, and healed rapidly; it contained about one drachm of pus. Erythema followed in the majority of my cases in from eight to ten days after injection; in one case it persisted for about two weeks.

Internal treatment was mistura bashami strychnine, stimulants, locally hydrozone, boric-acid solutions, and Löffler's solution. This last solution was used in only three cases. Albumin was present in the urine in the majority of the cases, which cleared up as convalescence progressed. Post-diphtheritic paralysis followed, to a mild degree, in eleven of the cases. All have recovered. Where paralysis does occur the results are more favorable where antitoxin is used. Broncho-pneumonia in four cases. This makes a total of forty-five cases treated with antitoxin serum. Out of this number three died, of these one died of paralysis of the heart. Another case complicated with abortion and rheumatism and the last one died of sepsis.

With regard to the question whether the diphtheria antitoxin reduces the mortality from diphtheria, I think that those who have followed the subject carefully can arrive at only one conclusion,—that beyond any doubt the mortality is reduced. I will say, however, that all the statistics that have thus far come to my knowledge have invariably shown a reduced mortality with antitoxin compared with other cases treated without it. Of course, the diphtheria antitoxin is not a specific treatment in the same way that vaccination is against small-pox. It does not destroy the bacillus of diphtheria, but it checks the course of the disease. The mere presence of Klebs-Löffler bacillus in the nose or throat does not constitute a case of diphtheria, —and it should not be classed as such. It requires other symptoms of diphtheria, such as fever and sore throat, presence of membrane, etc.

With regard to the value of this method of treatment of diphtheria, I can only say that my faith in it is such, from my own personal experience, that if I were called to treat a case and could not get the antitoxin, I would have the gravest fears for the safety of my patient; for then I would have to contemplate what was before the sufferer,— the days and nights of ceaseless vigil and work, then the result always

doubtful. How different where antitoxin is used, the duration of the disease is shortened, how quickly relief is obtained, and what gratifying results. I have immunized twenty-one cases, two of these patients afterwards had a mild attack of diphtheria. Where immunization is practised it takes away the dread of the disease from those in attendance, and the relief to the minds of such individuals cannot be estimated. When intubation is practised the tube can be withdrawn in much shorter time than without this treatment, and we can almost speak with certainty of the day when this is done. In all cases of laryngeal diphtheria antitoxin is specifically indicated, and its marvellous value can here be proven beyond any doubt, a communication recently received from Dr. L. Emmett Holt, of New York, says the evidence to my mind is simply overwhelming in favor of its use.

Pharyngeal cases may be doubtful evidence, but such results in laryngeal diphtheria are, to my mind, conclusive. I have been given permission to quote the following statistics of 5794 cases treated in private practice, 713 deaths, 12.3 mortality; or excluding 218 cases, moribund at the time of injection or dying within twenty-four hours, the mortality was 8.8 per cent. Injected during the first three days 4120 cases, 303 deaths, 7.3 per cent., excluding moribund cases, 4.8 per cent.

One thousand four hundred and forty-eight cases injected on or after the fourth day, mortality 27 per cent., showing but little influence of antitoxin.

Diagnosis confirmed by culture in over two-thirds of the entire number of cases.

In 1256 laryngeal cases, 691 not operated upon, of these 563 recovered, 80 died from other causes, and 48 from laryngeal stenosis.

Of 565 cases operated upon, intubation in 533, with mortality of 25.9 per cent.; tracheotomy in 32, with mortality of 37.4 per cent.

The results of intubation of men reporting ten operations or over, 280 cases, mortality 23.2 per cent.

The cases were drawn from the experience of 615 physicians, of whom over 600 have pronounced themselves strongly in favor of the serum treatment.[1]

Kuntzer,[2] in reporting the results of the use of Behring's antitoxin in diphtheria, emphasizes some things worthy of general attention. In the first place he criticises the custom of classifying "cases as mild, moderately severe, and severe," since the prognosis often varies from hour to hour. Behring and his collaborators laid special

[1] American Journal of the Medical Sciences, May, 1895.
[2] Deutsche medicinische Wochenschrift, 1894, No. 49.

stress on the value of the serum in cases treated early; and in the report on 220 cases by Erlich, Kossel, and Wasserman, the latter classified their cases according to the day of the disease on which the treatment was begun, showing that the death-rate, which was 0 in cases treated on the first day, increased from 3 per cent., on the second, to 14, 23, 43.5 per cent., etc. If future results are published in this way, the value of the remedy can be more definitely determined. Kuntzer himself treated twenty-five cases and lost only three, five required tracheotomy, and of these two died. Kuntzer followed Behring's method of treatment, giving 600 immunizing units to children on the first or second day of the disease; to children coming under treatment later, or adults twice that dose.

Kitasato has lately published a detailed report of 353 cases treated at the institute, with the serum prepared under his supervision.

The rate of mortality may be learned from the following: Kitasato has collected from reliable sources 26,521 cases of diphtheria in Japan previous to serotherapy, with 14,906 deaths (56 per cent.); while of 353 cases treated here from November, 1894, to November 25, 1895, there were only 31 deaths (8.78 per cent.) There is reason to believe that the mortality can be lowered if the treatment could be commenced early in the course of the disease. Thus in 110 cases in which injections were made within forty-eight hours after the invasion all ended in recovery. On the other hand, of 33 cases treated after the eighth day of the disease, eleven were lost. Some of the patients were brought in a moribund condition, and six children died within five hours after admission, six more within ten hours, altogether 21 cases (two-thirds of the total mortality) were lost in the first twenty-four hours.

Microscopic as well as culture examinations were made. The report only deals with those cases in which Löffler's bacilli were demonstrated to be present.

The report of the Metropolitan Asylum's Board of London, on the results from the use of antitoxin in diphtheria, shows that during the year 1895 there were 3529 cases of diphtheria treated in these six metropolitan asylum hospitals, of which 796, or 22.5 per cent., proved fatal; in 1894 the number of cases treated was 3042 and the deaths 902, showing a mortality equal to 29.6 per cent. Thus the proportional case-mortality was 7.1 per cent. lower in 1895 than in 1894.

This marked decline in the mortality of hospital-treated cases of diphtheria in 1895, considering that the average severity of the cases was "about equal" in the two years, has been ascribed by the medical superintendents to the antitoxin treatment in nearly 62 per cent. of the cases in 1895.

The unanimous testimony of all the reporters has been that this

method of treatment has had a marked influence in mitigating the severity of the disease, and the degree of benefit has been found proportionate, as in all the series of cases reported, to the promptness with which the remedy was applied. Extension of the disease to the larynx after admission occurred in a much smaller proportion of cases in 1895. The mortality of tracheotomized cases in 1894 was 70.4 per cent., in 1895, 49.4 per cent. This marked improvement in the tracheotomized cases, as the *Lancet* says, cannot be ascribed to any accidental circumstance.

Although the percentage of albuminuria and nephritis has been somewhat greater under the antitoxin treatment, it is only just to consider that (1) a more efficacious treatment by tiding the patient over a severe illness would, other things being equal, necessarily tend to cause an increase in the number of cases presenting complications, since a large number of patients who had suffered from severe attacks would survive; (2) that there is some evidence that there was in 1895 a greater tendency to complications than in 1894, since among the cases in 1895 not treated with antitoxin there was a larger percentage of complications, especially of albuminuria and paralysis; (3) that clinical observation may have been, and probably was, more minute in 1895.

The statistics show a percentage of 40.9 of albuminuria in 1895, against 24.1 in 1894, 23.2 of paralysis in 1865, as against 13.2 in 1894. A rash followed the use of the remedy in 45.9 per cent. of the cases.

The report ends with the following statement, signed by the six medical superintendents, "We are of the opinion that in antitoxin serum we possess a remedy of distinctly greater value in the treatment of diphtheria than any other with which we are acquainted."

Mortality of Diphtheria as treated with or without Antitoxin.

American.

	Without Antitoxin.	With Antitoxin.
1. Boston, Mass.	40 per cent.	11 per cent.
2. Detroit, Mich.	40 "	11 "
3. Chicago, Ill.	53 "	9 "
4. Hoboken, N. J.	34.8 "	10.94 "
5. Kansas City, Mo.	40 "	11 "
6. Milwaukee, Wis.	43 "	9.6 "
7. Minneapolis, Minn.	48 "	10 "
8. Montreal General Hospital	103 cases, 10 deaths.	10.3 "
9. Newark, N. J.	42 per cent.	16.4 "
10. New York	50 "	11 "
11. St. Louis, Mo.	60 "	4.6 "
12. St. Paul, Minn.	45 "	12 "

Foreign.

13. Berlin, Germany	39.9 per cent.	13.2 per cent.
14. Budapesth, Hungary	62.5 "	14.2 "
15. Cracow, Russia Poland	56.3 "	22 "
16. Glasgow, Scotland	38.3 "	14 "
17. Japan (Kitasato)	56.54 "	8.78 "
18. London, England	64 "	17.64 "
19. Moscow, Russia	40 "	10.5 "
20. Paris, France	60 "	12 "
21. Republic, France	Reduct'n in mortality.	65.6 "

There have been upward of a million injections of antitoxin, and in but five cases was death attributed to the serum, and in these no positive conviction could be assigned.

22. Reduced period of intubation by the serum treatment of laryngeal diphtheria.

European Observers.

Bokai	18 hours.
Von Ranke	25½ "
Huebner	63 "

American Observers.

O'Dwyer	67 hours.
Fischer	$68\frac{1}{10}$ "
Rosenthal	61⅙ "

With nuclein and thyroid extracts my experience has been very limited. I am but a novice in the clinical application and results of these extracts, but I will try and give you some facts concerning these subjects. The treatment of disease, morbid conditions, etc., by means of culture fluids,—the antitoxins, toxins, and the nucleins,—in other words, sero- or serumtherapy, is a new departure, comparatively, in practical medicine. The nucleins have very recently been contributed from biology, by the well-known scientist and bacteriologist, Dr. Victor Vaughn. In advocating the acceptance and clinical use of the nucleins when the entire field of serotherapeusis has presented much scope for contest and controversy and for incessant research; when new discoveries are being almost daily brought out by eminent scientists from all learned countries. The field of application is so broad and extensive and the varied indications for their utility are so numerous as to make the study of their relative position in the broader field of serumtherapy somewhat difficult.

Drs. Vaughn and McClintock have demonstrated beyond a doubt, as being within the lines of true science within the confines of truth,

that the stated effects of the nucleins can be clinically relied on. Under the dictum of such masters, the medical world has not been slow to accept them as true remedial claimants. It has been long known that the blood possessed germicidal properties, Vaughn believing that the nucleins alone, singly or unaided, possessed this power, conducted a vast number of experiments upon the guinea-pig and other animals, using specially prepared solutions obtained from yeast and the lymphoid tissues, or glands of animals. The basis of his theory was that this germicidal power of the blood resided alone, or almost entirely so, in the nucleins, the true proteids; the nuclein itself residing in the white or polynuclear blood-corpuscles. With the aid of Dr. McClintock, he has successfully developed his theory, subjecting it to numberless delicate tests upon animals and to the more crucial clinical tests for the prevention, amelioration, or cure of varied diseases and diseased conditions, his work covering now a period of two years. He claims from his careful, critical, scientific work favorable results, giving out during this period of time two reports to the profession. His usual carefulness and reserve marked both reports. In the first report giving the origin, source, history, evolution, development, and manner of administration; recommending its careful, discriminate use in man in a limited number of diseases, reserving a definite approval for a second report after another year of trial.

His endorsement in this last report is couched in very moderate terms, to wit: That "the result of his second year's trials of the nuclein solutions encourages him to continue their use," I think the profession after such endorsement as this can accept the nucleins as true remedies of special efficacy. Further developments by Vaughn and others of even repute may succeed in establishing the nuclein as the key to immunization and prophylaxis, and as the biological disease-resistant forces. I feel sure the nucleins have come to stay, while we must accept and acknowledge serotherapy as a part of general therapeusis. No doubt we all feel that some good result, some great victory over disease and morbid conditions, will come of serotherapy. Many of our ablest clinicians are utilizing the nuclein preparations, and their reports are all more or less favorable. Serotherapy is already an established art in medicine, and occupies a big space in general therapeusis; the nuclein solutions are used internally and locally, they are chiefly used hypodermically; the minimum dose to begin with being ten minims, increasing five minims daily until the maximum dose, thirty to eighty minims, is reached, a dose of eighty minims being found sufficiently large ordinarily; the leucocytosic effect of which will arouse the resistant forces to probably the

fullest effect. For the smaller quantities, ten to twenty-five minims; an ordinary pocket hypodermic syringe will answer, but when using the maximum dose a syringe capable of holding that amount should always be used.

They should be given daily, increasing five minims each day. In delicate or extremely nervous patients you may have symptoms of shock, fainting, etc., follow even so small a procedure as the puncture of a surface with a hypodermic needle-point, such patients should be given a stimulant beforehand. Sometimes a slight erysipelatous rash is produced; it is of small moment, usually passing away in a few hours. A certain numbness and dizziness may also follow, but are likewise transitory. The originator claims that an elevation of temperature always follow its use, coming on in about three hours. Persistent thoroughness in aseptic detail and continued injections are the prerequisites to the successful use of this remedy. The leucocytosic effect will generally last about fourteen hours. Vaughn and others claim it to be specially serviceable and curative in tonsillitis, chronic indolent ulcers, incipient phthisis, or tuberculosis, malaria, diphtheria, bronchial affection, pneumonia, influenza, anemia, chlorosis, typhoid fever, and also report its favorable effects in a great number of diseases. The combined power of nuclein of supplying building material, and of arresting overwhelming disease-germs that enter the blood has made it more generally applicable than the antitoxins.

Thyroid extract has been used in many diseases associated with or resulting from deficiency of the thyroid secretions: cretinism, congenital goitre, atrophy of the thyroid gland in childhood (semi-cretins).

Goitrous degeneration causes symptoms in proportion to the amount of the thyroid gland destroyed. The use of the thyroid gland as a medicament was naturally suggested by the ascertained pathology of myxedema, and the relation of myxedema to goitre doubtless suggested its use in the latter. I speak of its use in myxedema because this is the first disease in which it was considered of benefit, though I have had no experience with this affection. It is used in obesity because reports show that it sometimes has a good deal of influence upon the weight. The use of the thyroid gland in the treatment of goitre, and in the enlargement of the thyroid known as Graves's disease or exophthalmic goitre, has been followed in some instances by marked improvement. In reported cases of goitre in which full doses of the thyroid extract have been given a most remarkable diminution in the size of the diseased gland occurred.

Improvement or cure may confidently be expected in 76 per

cent. of the cases, but sufficient time has not yet elapsed to determine what the final results will be; cystic growths in the thyroid gland are not probably influenced by this remedy. Clinical experience has not yet demonstrated that this remedy is of value in other diseases, but its effect in diminishing the size even of a very firm and hard enlargement of the thyroid gland would certainly justify experimentation in other directions.

I think it is the duty of every physician, judging from the experience of myself and others, when we are called to a case of diphtheria where it presents its clinical aspect, that we should use antitoxin serum even before we receive the result of a biological examination, for success lies in using it early in the disease.

The sum of evidence has for a long time favored the therapeutic use of antitoxins, and they have done much towards ameliorating infectious or germ-diseases and lessening the mortality rates therefrom. The nucleins have gained prestige even as rapidly, and their wide applicability brings them more prominently to the front, and the present trend of the clinical management of the germ-diseases is in the direction of this line of therapeusis.

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THE TREATMENT OF CANCER OF THE RECTUM.[1]

By Lewis H. Adler, Jr., M.D.,

Philadelphia, Pa.,

Professor of Diseases of the Rectum, Philadelphia Polyclinic and Post-Graduate College; Surgeon to the Charity Hospital and to the Out-Patient Department of the Episcopal Hospital.

The question of what surgical procedure is justifiable in any given case of cancer of the rectum is frequently hard to decide, especially from the stand-point of relieving the patient the most with the incurrence of the minimum risk.

The recognized operations are four in number: *Extirpation, Colotomy, Posterior Linear Proctotomy, and Curettage.*

Extirpation.—The ideal method of treating cancer of the rectum would be by extirpation, as is done in cases of the same disease when the mammary gland is the seat of trouble; but, unfortunately, it is not often that the rectal neoplasm is discovered in time to permit of the entire removal of the growth and of all glandular involvement, consequently, it is my belief, that the cases in which this operation is indicated will always be confined to a relatively small number.

Colotomy.—On the other hand, colotomy is quite practicable in a large number of instances, and the benefits derived from its performance are thus minutely described by Dr. Charles B. Kelsey:[2] "It relieves pain, does away with the constant tenesmus and discharge from the rectum, which by their exhausting effects are the immediate cause of death; delays the development of the disease by preventing the straining and congestion of defecation; prevents absolutely the complication of intestinal obstruction, which is another cause of death; enables the patient to sleep, eat, and gain flesh, and often makes him think himself cured in spite of the plainest prognosis to the contrary. Instead of passing his days and nights upon the commode, wearing out his life in the effort to free the bowel from its irritation, he has one or perhaps two solid fecal evacuations from the groin in twenty-four hours."

[1] Read at the meeting of the American Medical Association held at Atlanta, Ga., May, 1896.
[2] New York Medical Journal, November, 1892.

The foregoing description of the benefits derived from a colotomy is no exaggeration. It is the operation to which I would cheerfully submit were I a sufferer from cancer of the rectum which had reached the state of operative interference. In this connection I would cite the following case, which I consider as a typical one for the operation of inguinal colotomy:

T. J. P., a male, American, aged 52 years, a clerk by occupation, first consulted me in 1893. At that time his history was as follows:

Family History.—Parents dead, one at age of 60, of pneumonia, the other of rheumatism at 80. Oldest brother died at 40 of gastric cancer. Patient the youngest of seven children.

Personal History.—Healthy as a child. Married at 40. With the exception of lumbago and several attacks of presumed malaria he has enjoyed good health up to present illness. Has been a moderate user of alcohol, but an inveterate smoker. No venereal trouble. For many years has been constipated.

Present trouble began about four years before his visit to me. The pain in his back, which he attributed to lumbago, became worse. His bowels became loose. In the morning, he would have apparently a normal fecal stool, and later in the day one or more watery passages. The movements were attended by considerable straining and a sensation as though the bowel had not been entirely emptied. The urine was voided frequently during the day and he was obliged to empty his bladder several times during the night. Later on, he noticed that his passages, when formed, were not as thick as they had been, but what caused him anxiety was the fact that he passed about a tablespoonful of an offensive bloody fluid, several times daily, and the movements were accompanied by severe pain over the sacrum. These symptoms becoming aggravated, and the patient being unable to rest comfortably in any position, night or day, together with the fact that he was steadily losing flesh and had no appetite, led him to consult me.

At this time, examination revealed the following condition: Varicose veins of both legs, but much worse on the left side. Cachexia not marked. External and internal hemorrhoids noted. A growth was detected about four inches from the anus, which was quite hard and nodular. Its upper limits could not be ascertained.

Consent was given to perform an inguinal colotomy.

Under ether anesthesia, the usual incision was made into the abdominal cavity, and the peritoneum was drawn up and attached to the skin by sutures. The colon readily presented, and at the site selected for the artificial anus a loop of it was brought out into the

wound and a glass rod, four inches long, was passed at a right angle to the line of incision under the colon through a puncture made in the mesentery; this was done so as to fix the bowel in the desired position. The intestine was then sutured around the wound to the skin and parietal peritoneum; seven or eight fine silk sutures being used on either side, and the last suture at each angle being placed across from one side to the other. The suturing of the bowel in this manner prevented the protrusion of the small intestine and consequent danger of strangulation.[1]

The dressing consisted of gauze placed between the glass rod and skin, so as to prevent undue pressure, and the lower strata of gauze overlying the intestine was soaked in carbolized olive oil, to obviate any subsequent adhesion to the bowel from the lymph filling the meshes of the gauze which is apt to ensue unless this precaution be taken.

The patient did well after the operation and convalescence was all that could be desired. The intestine was opened on the third day. In two weeks he was allowed to get out of bed, and in another week to walk about generally. By means of a home-made abdominal band and the application of pledgets of old linen and cotton over the artificial anus, he had and still has no difficulty in controlling the passage of wind and fecal matter. A truss was obtained for him, but was not so comfortable as the abdominal support mentioned.

He gained flesh, was able to eat and sleep well and attend to his business. The pain and inconvenience previously suffered were greatly relieved. During this time opiates were occasionally required. At present writing (three years since the operation), and for a year past, he has suffered considerable distress from pain over the sacrum and has not been able to work. Opium has to be used daily. The growth has increased and causes considerable vesical disturbance. It is probable that the patient may live for six months or a year longer.

In an article read before this association last year,[2] I went into a more extended discussion of the relative merits of extirpation and colotomy in the treatment of cancer of the rectum.

Posterior Linear Proctotomy.—I have never attempted to relieve malignant trouble affecting the rectum by means of a linear proctotomy. In benign stricture I have found it an excellent plan of treatment when combined with the subsequent use of bougies. Those surgeons who adopt this method for the relief of rectal cancer

[1] Fatal results from this accident are on record.

[2] Transactions, Surgical Section of the American Medical Association, 1895, pp. 101-104.

speak highly of its efficiency. Some going so far as to claim that it takes the place of both colotomy and excision.[1]

Curettage.—In the present paper, I desire to call attention to and to emphasize the value of curettage in those cases of cancer in which the disease is within the lower three inches of the rectum and its character of such a nature as to permit of its more or less complete removal by the curette. In selected cases the operation is followed by a diminution of pain, bearing-down sensations, and discharge and the lumen of the bowel is enlarged.

Some patients object to having an artificial anus and refuse to have a colotomy performed; others consider the curettage of the growth a less dangerous operation and prefer a procedure which, to them, is less abhorent than the idea of an artificial opening, in an abnormal position, for the passage of feces. In some of these cases curettage can be done with decided benefit.

In certain cases the combined operations of colotomy and curettage will afford the patient much more relief than where one or the other procedure is individually adopted. It is true that only temporary relief is afforded by either curettage or colotomy, but in the majority of cases this is all we can offer the patient under any plan of treatment in vogue at the present time.

During the past two years I have curetted the rectum for the relief of malignant trouble in seven different cases. In only one case was the operation deemed unsatisfactory. This was in a patient of Dr. D. F. Greenwald, of Philadelphia, with whom I saw the patient in consultation. I am indebted to the doctor for the following history: "Mrs. R. was treated by me (Dr. Greenwald) for a recto-vaginal fistula about five years ago. At that time there was no evidence of contraction of the calibre of the bowel and no other symptoms pointing to the presence of cancer. For a period of three years following the operation for fistula she suffered no discomfort and was able to pursue her usual duties. Two years ago she complained of pain during defecation, which was attended by a discharge of glairy mucus, streaked with blood. Before examination a decided decrease or narrowing of the bowel was discovered about two and a half inches above the anus. Antiseptic douches and the use of rectal bougies daily benefited the case for more than a year. She then complained of bearing-down pains and the countenance assumed the characteristic carcinomatous cachexia. These symptoms continued with greater severity until you saw her. After the curetting operation she was unable to leave her bed, her appetite failed, emaciation

[1] Mr. Charles B. Ball, F.R.C.S.I., Diseases of the Rectum and Anus, p. 336.

followed, and death from exhaustion ensued in two months and three days."

Even in this case, which was a most unfavorable one for any operation, the patient was much relieved of pain, and the two months she lived were certainly passed with more comfort than would have been the case had no operative interference been attempted.

The results following curettage are best described by recording the history of a typical case: J. M., a colored man, aged 33 years, by occupation an engineer, applied for treatment at our clinic at the Polyclinic Hospital, about two years ago.

Family history negative.

Personal history negative, except a possibility of his having had syphilis; this fact the patient denied, but the records at the Pennsylvania Hospital, Philadelphia, where he had previously been treated, indicate otherwise.

Present trouble began some three years previous to his coming under my observation, with bloody discharges from the rectum and a feeling of distress about the anus. He stated that on two occasions, during this time, he had been admitted into the wards of the Pennsylvania Hospital and had the rectum cut, and that this was followed by the passage of bougies. He dreaded so much the passage of the bougies that, on each visit to the hospital, he left as soon as he could obtain his discharge.

At the time he came under my care he had a more or less constant bloody discharge from the rectum, considerable pain at stool and for some time following the movement; he was very emaciated. Examination revealed a mass occupying the lower two inches of the bowel,—part of the growth protruding through the anus. Abdominal palpation indicated the presence of nodular masses within that cavity especially marked on the left side above the sigmoid flexure. At first he refused operative interference, six months later he consented to enter the hospital.

Upon admission to the wards of the Polyclinic and after the lapse of several days, the patient was prepared for operation, and upon the day selected he was etherized, the sphincters were stretched, and the growth was thoroughly scraped away with a sharp spoon curette. A weak solution of permanganate of potassium was employed for douching purposes. In some places scissors had to be used to remove the denser and more indurated portions of the mass. The bleeding at the time and after the completion of the operation was not alarming. The parts were fully dusted with iodoform and the rectum was plugged by means of a good-sized piece of gauze attached to a large rubber drainage-tube, which latter had been closely fitted over a glass tube

to keep it patulous,—the rubber tube at the same time protecting the glass should it by accident break. Around the tube but within the folds of the gauze the packing was placed. The dressing was completed by a fine pad of gauze and cotton and a tailed bandage. Recovery from the operation was perfectly satisfactory, and in a month's time the patient was given employment in the hospital as an orderly. He had not been able to work for over a year previously. The gain in flesh was very marked. For a long period he was given the iodide of potassium, but any increase above five grains, thrice daily, produced nausea,—no good effect was noticed from its use. Four months later the patient was in such good health that he married.

A short while after this event the growth in the rectum was noticed returning and the discharge reappeared. Some pain was also complained of, and later on, defecation was accompanied by considerable distress and difficulty.

Six months after the first curettage he was again subjected to a similar operation. Ten days subsequently he stated that he felt well and was free from pain. Graduated bougies were now used daily.

A month later, marked tympanites suddenly appeared and the patient was unable to pass either wind or feces. Various laxatives were employed and several enemas administered before the bowels were made to move, which was not until the third day. Several similar attacks ensued which occasioned considerable trouble before relief was obtained. Finally the patient became confined to his bed through sheer weakness, and death occurred from exhaustion about nineteen months from the time I first saw him.

The autopsy revealed cancerous involvement of the liver mesentery and intestine.

In conclusion, I would roughly summarize the indications for the operative treatment of rectal cancer thus :

Extirpation, to be considered only in those cases in which the disease admits of the hope of obtaining a permanent cure.

Colotomy, when the rectum is involved above the lower three inches of the bowel and the disease has produced an appreciable obstruction.

Curettage, or a *posterior linear proctotomy*, or the two combined, for those cases in which the disease occupies the lower three inches of the rectum.

MEMBRANOUS RHINITIS.

By Lewis S. Somers, M.D.,

Philadelphia.

The existence of a membranous rhinitis without the presence of the Klebs-Löffler bacillus is a debatable question, although evidence is gradually accumulating in favor of a certain class of cases in which a true membrane forms in the nasal cavity, without any signs of diphtheria being found, even after careful bacteriological investigation by competent men. The differential diagnosis between *primary* diphtheria of the Schneiderian mucous membrane and the so-called fibrinous or membranous rhinitis is an extremely difficult question to decide, especially if there has been no exposure to the former disease. Fortunately the treatment is practically the same in both cases, and if isolation is insisted upon, as it should be in all cases where a false membrane is present, the danger of infecting other members of the community will be reduced to a minimum. The one deciding test in the diagnosis is a bacteriological examination of the suspected membrane and the confirmation of the pathogenic or non-pathogenic bacteria present by animal inoculation.

Probably in a large majority of nasal membranes a bacillus can be found resembling the specific bacterium of diphtheria in all points except its virulence when injected into animals. Whether this microorganism is a separate variety or only an attenuated or latent form of the Klebs-Löffler bacillus is a question that still remains *sub judice.* From published bacteriologic reports and my personal experience I am of the opinion that the rod found in some cases of membranous rhinitis is but a modified form of the bacillus of diphtheria.

Basing one's argument on these premises, it seems a logical conclusion that the name fibrinous rhinitis is frequently misused, and a number of cases reported as such should be classed under the title of primary nasal diphtheria. The case forming the basis of this report is one in which the diagnosis was very perplexing from a number of points, and was only cleared up after several bacteriological examinations, and the contagious character of the disease was made manifest by its introduction among other children in the family of the patient. The history of the case is as follows:

W. F., male, aged 8 years, was admitted to the Nose and Throat Clinic of the Union Mission Hospital, on August 8, 1895, complaining of nasal and faucial dryness. On visual examination the pharynx and nares showed a moderate degree of atrophy and some sclerosis. This

condition was treated by cleansing the nose and throat with an alkaline antiseptic solution, and then menthol was used as a local stimulant. This condition was slowly improving when on September 5 the boy complained that his nose was obstructed and he had to breathe through the mouth. Examination showed the nasal cavity on both sides to be completely obstructed by a false membrane, a dirty white in color and fibrinous in character. The rhinoscopic image presented the same state of affairs that existed anteriorly, showing the nasal cavity to be completely blocked with the membrane. The pulse and temperature were normal, and the patient presented no objective or subjective symptoms except the distress arising from the closing of the nasal cavities.

A diagnosis was made of fibrinous rhinitis, as there was no history of exposure to diphtheria, and the symptom complex was diagnostic of the former disease, although no search was made at this time for the bacillus of diphtheria. The treatment consisted in the free use of hydrogen dioxide for several days, but with a negative result, and if anything the membrane increased in quantity.

October 8. A culture-tube was inoculated with the membrane and sent to the Philadelphia Laboratory of Hygiene. The following day a report was received from the laboratory stating that the Klebs-Löffler bacillus had not been found in the culture, and "the case should be regarded as probably one of false diphtheria."

October 10. A second culture was made.

October 11. Report from the laboratory states that the bacillus of diphtheria is present in the culture. The boy was then immediately isolated, but the treatment remained the same as there was no evidence of any constitutional infection.

A few hours after the boy was quarantined his two brothers obtained access to his room, and within forty-eight hours both were infected with the disease. The cases then passed out of my hands until I was called in consultation on the 15th of the month. The original case was apparently well. His brother, aged 2 years, had no evidence of nasal or faucial diphtheria, but the larynx was filled with the typical diphtheritic membrane, breathing was shallow and stertorous, with marked dilatation of the nasal alæ from his ineffectual respiratory efforts. Pulse 120; respiration 36. Had five convulsions during the day. Deeply cyanosed and was evidently dying. Operative measures were immediately advised, but the parents declined. Death occurred four hours later.

Another child, male, aged 5 years, had a membrane on both tonsils, without evident discomfort and but a moderate degree of fever (100° F.) and a corresponding pulse-rate. This child at no time during

the course of the disease evinced constitutional infection, the morbid process apparently being local. Cultures from both these children showed the presence of the Klebs-Löffler bacillus, confirming the diagnosis of diphtheria. The diagnosis of this case presented two questions for consideration, first, whether the disease was originally primary nasal diphtheria, remaining latent for a considerable period of time, or, secondly, did we have a true case of membranous rhinitis, to which was superadded, later in its course, the Klebs-Löffler bacillus. From the symptoms and examinations made, both of the structural and bacterial aspects of the nasal membrane, I am of the opinion that the case was primarily a true membranous rhinitis, later becoming infected with the diphtheritic organism. A case in some respects similar to the above was reported by Abbott.[1] The disease occurred in sisters, one directly infecting the other. From one case the Klebs-Löffler bacillus was obtained, while the culture from the second showed the presence of a bacillus resembling the former, but not producing fatal results when injected into guinea-pigs.

One of the reasons why the diphtheritic aspect of the nasal membranes has not been elaborately worked out as well as it might is the difficulty in properly isolating the specific organism. Several examinations of the suspected membrane may be made, but unless extreme care is taken the presence of the bacillus will not be discovered. Or, again, the bacteria of diphtheria may be present in very small numbers and then will be masked by the rapid growth of other more prolific organisms. Garis[2] reports an interesting case in which he made four thorough examinations before he discovered the specific bacillus. Various other bacteria are constantly present, especially cocci. Strazza[3] relates two cases, in one of which he found the Klebs-Löffler bacillus, while in the other a careful search showed the presence of a streptococcus. This latter organism is the form usually present in septic diseases of the nose, alone or in conjunction with other forms, especially the rod resembling the specific bacterium of the disease. In conjunction with the bacteriology of this affection, an interesting point is the location of the membrane in the nasal chamber. In this case the membrane completely filled the respiratory portion of the nasal mucous membrane, but except for a moderate amount of congestion the olfactory region remained perfectly clear during the entire course of the disease. Comparatively few or no bacteria have been found in this latter portion of the nose. Whether this is due to the peculiar anatomy of the parts or other reasons, I cannot suggest, but, as far as I have been able to ascertain, the membrane, as a rule, is confined to the respiratory region.

Microscopically, the membrane is seen to be composed of a

fibrous stroma entangling leucocytes, red blood-cells and detritus in its meshes. Bacteria of various forms constantly being present. Neumann[4] found cholesterin present in several membranes examined by him and claims it to be characteristic of fibrinous rhinitis. His results have since been confirmed by other investigators, especially among the Germans, who have been doing considerable work in this direction. The diagnosis of membranous rhinitis will, to a great extent, depend upon the bacteriological tests. The prominent diagnostic points being the absence of the Klebs-Löffler bacillus, little or no constitutional infection and the presence of a membrane in the nares with intense nasal discomfort. McBride[5] relates one case lasting two weeks, in which he diagnosed the disease by the two symptoms last named, not making a bacterial test. The question of the presence of diphtheria is a most important point in the diagnosis. If the membrane results from extension of a diphtheritic process from the fauces, it is simply considered as a complication, increasing the danger of the primary affection. Smith[6] says in this connection, "Nasal diphtheria involves great danger, from the fact that it is likely to give rise to systemic infection of a grave type." This secondary extension of a disease already existing offers no difficulty in diagnosis, but the differential diagnosis of *primary* diphtheria from membranous rhinitis is one of far-reaching importance and should be definitely decided, as far as possible, as soon as the case is seen, or, if the diagnosis be held in abeyance, isolation should be immediately insisted on.

Of minor importance are the false membranes that sometimes cover the turbinal tissue after they have been cauterized. These are usually limited to the seat of operation and are due to coagulation necrosis of the epithelium covering the parts, from the blood-spaces being destroyed by the cautery and consequent interruption of nutrition to the surface tissues. The prognosis of membranous rhinitis is very favorable, the disease never resulting fatally. The only question arising in regard to the future of the patient is the condition remaining in the nares after the disease has been cured. Usually the lower turbinal tissue remains hypersensitive and congested for some time, but under appropriate treatment soon regains its normal condition.

Even in primary nasal diphtheria "septic infection is rare and the membrane shows little tendency to spread" (Burnett).[7] Both may remain latent for a considerable period of time without any evidence of their existence, except slight symptoms of a subacute coryza. These are the cases from which infection occurs, especially if the Klebs-Löffler bacillus be present and the condition is not properly

differentiated. In my case, as said before, protonuclein was responsible for the rapid disappearance of the membrane. Vladar[8] concludes from five cases that iodoform is a specific. He also says that after its use a granulating surface remains which necessitates further treatment for its removal. The main object desired in the treatment of non-specific nasal membranes is cleanliness of the nasal cavity, any alkaline, antiseptic solution, such as "Seiler's solution," may be used, and, if in addition to this a non-irritating solvent is applied, the cure of the disease is only a question of a short time.

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HOT AND COLD APPLICATIONS IN THE TREATMENT OF DISEASES OF THE EYE.[1]

By William Campbell Posey, M.D.,

Philadelphia.

Assistant Surgeon to the Wills Hospital and Ophthalmologist to the Howard Hospital and the State Hospital for the Insane at Norristown; Fellow of the College of Physicians.

Each one of you, probably, has been asked more than once by some friend or acquaintance, who thinks that the mysteries of medical science are made to vanish by one's simple enrolment in a medical school, "Is it better to bathe the eyes with hot or with cold water?" Although this would seem to be a question which would find a ready answer, I am convinced that even the quickest and cleverest of you would hesitate a moment before replying. But, gentlemen, you need not be ashamed of your ignorance, for I assure you that many a trained ophthalmologist would exhibit the same hesitancy about committing himself, and would answer with considerable mental reservation as to the reliability of the information which he was about to impart.

[1] Read by invitation before the Stillé Medical Society.

So far as we know, it seems to make very little difference whether we bathe the eye with hot or with cold water, so long as that organ is healthy, but when it is a question of the treatment of some grave ocular disorder, one would think that there must then be a choice between the two agents. A most diligent search through ophthalmic literature will disclose but scanty references bearing upon the subject, and these but incidental remarks upon the treatment of isolated diseases, and nowhere will you find any definite principles to guide you in their application. It is true you will meet at times a champion who has found in hot water a therapeutic agent that is all-powerful to work mighty changes in the eye, and one might feel that all other applications were valueless did one not encounter, shortly afterwards, an advocate of ice compresses, who claimed this extreme measure to be a panacea for all ocular ills. The great majority of authors, however, commit themselves to the doctrine of Sir Henry Drummond, which is, briefly, that the temperature of applications is a point which the patient might be suffered to judge for himself according to the degree of comfort which he derived from it. I think you will agree with me that such advice is most unsatisfactory, and did we follow it we should be proceeding not only most unscientifically, but at the same time we would be running the risk of shaking our patients' confidence in our skill, by the acknowledgment that we were guided in our treatment of them by their every whim and fancy.

The ignorance concerning the action of heat and cold upon the eye is due, no doubt, to the great difficulty we must contend with in determining the temperature of that organ. The eye is so sensitive, especially when diseased, that the mere approach of the measuring instrument will cause the patient to shrink, while the almost impossibility of keeping the apparatus in proper apposition to the globe prevents any general attempt at determining its temperature. Three German investigators, however, have combated, and have in a measure overcome, the difficulties by which they were confronted. Some years ago Michel succeeded in measuring the fall in temperature which followed the application of an ice-bag to a rabbit's eye, and within the past few years two other ophthalmologists have experimented quite extensively on human eyes by means of a thermo-electrical apparatus. The apparatus of the last of these observers, Giesse, was better perfected than that of Silex, the first investigator, and consisted of a galvanometer which was provided with connections of iron and copper wires one millimetre thick, in order that a constant stream might always flow in the same direction. The end of these wires, which was to come in contact with the eye, was flattened out and soldered and so moulded that it fitted accurately into the con-

junctival sac. The end was then varnished to prevent the action of the conjunctival secretions upon it. In order to avoid the necessity of taking the body temperature by the mouth, as practised by Silex, Giesse attached the other end of the connection to a thermostat and compared the two findings on a mercurial column, which was permitted to project through a hole in the hood which covered the thermostat.

As a result of these experiments, both authors concluded that *the temperature of the eye is elevated in all pathological conditions of that organ, although the highest local temperature which was recorded in the conjunctival sac never even equalled the normal body temperature.* The latter observation was accounted for by the increased conduction and radiation from the eye by reason of its extraneous position, by its being bathed in tears, and by the avascularity of its parts. Regarding the action of hot and cold upon the eye, their results differed widely. *Silex concluded that cold compresses cause an increase in the temperature of the eye, while hot compresses lower it; Giesse was of the opinion that cold depressed while heat elevated the temperature of the conjunctival sac.*

Physiologists[1] tell us briefly that cold lowers the temperature of a part by contracting the blood-vessels, while heat raises it by dilating them. They add, however, that a short temporary application of cold will either not change the temperature or will produce *a slight increase* in it, due to the more rapid molecular transformation caused reflexly by the stimulation of the skin, while the short but not too intense action of heat on the surface causes, in the first place, a transient slight decrease of the temperature,—partly by retarding the production of heat reflex and partly by the increase in heat radiation, occasioned by the cutaneous vessels and the stimulation of the skin.

It is probable, therefore, that Silex obtained the measurements of the primary and transient effect of these agents, due in all likelihood to a faulty construction of his apparatus, while Giesse's finding represented the secondary and more permanent action.

The increase over the normal temperature which was found by both to exist in the different diseases of the eye was as follows:

GIESSE.

Catarrhal conjunctivitis	1.15° C.
Corneal ulcers	.99° C.
Hypopyon keratitis	.39° C.
Iritis	1.02° C.
Panophthalmitis	.84° C.
Irido-choroiditis	.28° C.

[1] Landois and Sterling, Text-Book of Human Physiology.

SILEX.

Catarrhal conjunctivitis	0.93° C.
Corneal ulcers	0.80° C.
Hypopyon keratitis	1.45° C.
Iritis	1.56° C.
Irido-choroiditis	1.18° C.

Results obtained after the application of cold compresses varying from fifteen to thirty minutes in duration were as follows:

Giesse.—A *reduction* in the temperature of 0.93° C. in the normal eye; 0.50° to 0.89° C. in catarrhal conjunctivitis; 0.98° C. in phlyctenular conjunctivitis; 1.44° C. in iritis; and 0.22° C. in corneal ulcers.

Silex.—An *increase* in the temperature of 2.24° C. in gonorrheal ophthalmia and 1.9° C. in iritis.

Giesse also noticed that the greatest effect of the compresses is obtained in about fifteen minutes, and if they were then persisted in, he found that there is a secondary effect, which consists in a marked increase in the local temperature.

Results obtained after the application of hot compresses.

Giesse.—An *increase* in the temperature of 0.52° C. in suppurative choroiditis; of 0.32° C. in corneal ulcer; of 0.12° C. in ulcus serpens; and of 0.46° C. in hypopyon keratitis.

Silex.—A *decrease* in the temperature of 0.93° C. in corneal ulcer with chemosis of the conjunctiva, and of 0.95° C. in iritis.

From these experiments it is at once evident that heat and cold exert a profound influence upon the temperature of the human eye, and that the intensity of their effect depends largely upon the length of time they are applied. If, therefore, the treatment of ocular diseases was simply a question of influencing the temperature, the indications for the employment of these agents would be quite simple, but in addition to the action which they have upon heat control, that which they exercise upon the circulation of the eye, independent of its influence over the regulation of the amount of heat in a part, is of no less significance from a clinical stand-point.

In inflammatory conditions, cold limits the exudation and checks the secretion by constricting the capillaries, while heat aids in the healthful repair of tissues by absorbing the exudation and by carrying the proper nourishment to the part.

Again, in the early stages of inflammation, cold relieves pain both by preventing the flow of blood to the part by its contracting the blood-vessels and by its limiting the amount of exudation. In the latter stages heat relieves pain by absorbing the exudation and lessening the tension of the inflamed area. Again, heat greatly aug-

ments the diffusibility of liquids into the eye, Bellarminoff and Dolganoff having shown that the rapidity and the amount in which drugs are absorbed after the application of the hot compress is due to a change which is wrought in the corneal epithelium.

Finally, both agents have a germicidal action. It has been found that a 1 : 10,000 hot solution of the bichloride of mercury is more efficacious in destroying pus-formation than a cold one of 1 : 2000. Water itself from 110° to 140° C. kills many bacteria, whilst cold, even at the temperature at which it may be applied to the eye, will hinder the development of germs and even prevent their growth.

Having considered with you the general effect of heat and cold upon the eye, we will now turn to the application of these agents in the treatment of the several diseases of the eye, but before doing so it will be well to consider, briefly, the manner in which they are usually employed.

Mode of Application.

Heat and cold may be applied in either a moist or a dry form. A greater action is usually derived from the moist compress whether it be hot or cold, for Jaennec has proven that therapeutically moist heat is not only more penetrating than dry, but that it gives a greater variation in the degree of heat. Giesse has also shown that the cold compress will lower the temperature much more rapidly than the bladders filled with ice, which are applied at times over the closed lids. In addition to the greater penetrating power of the moist form of application, it possesses the greater advantage of washing away all secretions from the conjunctival sac.

The most effective manner of applying *moist cold* is by means of the ice compress. This is prepared as follows: Several pads of gauze of three or four thicknesses, about the size of a silver dollar, are laid on a block of ice. The ice should be suspended in a receptacle with perforations in its bottom which will permit the water and any secretion from the compress to drain off into a jar beneath it. An ordinary kitchen cullender and wash-basin will answer very well for this apparatus. One of the pads is taken from the ice as soon as it has been saturated and is applied to the closed lids, and should be removed in a few moments and another fresh one substituted for it. Compresses of absorbent cotton which have been soaked in ice-water may also be used; they should be squeezed out sufficiently to prevent any of the water trickling over the patient's face and neck. Cold may also be applied by means of the ordinary douche, or by holding a small cake of ice directly to the eye, but these should be discarded for the compress, as they can only be used intermittently.

Dry cold is usually obtained by placing a bladder or a small ice-

bag filled with cracked ice directly over the lids, or a similar effect may be gained by passing a cold stream through a coil of tubing which has been moulded to conform to the shape of the globe. Both of these methods have the objections of making more or less pressure upon a sensitive organ, of being less powerful than the moist form of application, and of not washing away the secretions.

Moist Heat.—Hot compresses consist in several thicknesses of gauze, which have been saturated in very hot water and then applied to the eye as hot as they can be borne. The same effect may be gained by placing upon the eye little muslin bags filled with cammomile flowers, which have been dipped in boiling water. The continuous application of moist heat is best accomplished by preparing a poultice of ground slippery-elm bark, or by bandaging a hot saturated compress of spongio-piline to the eye.

Dry Heat.—This is well applied either in the form of a hot-water bag or by packing a pad of heated flannel or absorbent wool into the hollow over the eye and holding it in place with a flannel bandage. These compresses should be as hot as the part can bear, and care should be exercised that they do not make too much pressure on the globe.

As the prolonged action of either heat or cold is apt to excoriate the skin of the lids, it is well to keep the region about the eye anointed with sweet-oil or vaseline. It is also important to remember that the intermittent action of both agents is injurious to the eye, so that the attendant should be charged that the compress be changed every few minutes during the time of application.

Application in Different Diseases.

Toilet of the Eye.—As previously stated, it is probably true that it makes but little difference whether we bathe our eyes with hot or cold water so long as they are healthy. Luke-warm applications, however, will be found to give the greatest comfort to the greatest number. If you will add a little boracic acid or sodium chloride to the water this will make the application even more grateful. In regard to the practice of many of opening the eyes in a basin of water after the head has been immersed in it, I need only say that we are not fishes, and that our eyes are not adapted for such a procedure, and that we had best rest satisfied with the glass dropper which is usually employed, or substitute the basin by the more modest eye cup.

Conjunctivitis.—In hyperemia of the conjunctiva, induced by ametropia or the presence of a foreign body, we have in cold a simple but effective means of restoring the membrane to its healthy condi-

tion. In these cases, the douche or the compress may be applied over the closed lids with the greatest advantage for fifteen minutes at a time. The water employed should not be too cold, or excessive reaction may follow its use.

In the severer forms of conjunctivitis, when there is a purulent inflammation or an exudate, ice is the sovereign remedy, and there is but one way to apply it and that is by the continued use of the ice compress. We need not fear disastrous results from its prolonged application, for of all the remedies we have at our command in combating this type of disease in the early stages, this is undoubtedly the best. At the commencement of the disease the board-like swelling of the lids is doubtless one of the chief causes in elevating the temperature, and, as the swelling and induration prevent the cold from gaining access to the eye, it is necessary that the treatment should be energetic and prolonged. The compresses, therefore, should be maintained night and day in such cases, and should only be desisted in when a corneal ulcer threatens or the secretion becomes excessive. If either of these two contingencies should arise, the ice-compress should be at once substituted by the hot application, and this should be persisted in for fifteen minutes every two or three hours. The hot water will relieve the stagnant condition of the corneal circulation that has been induced by the intense chemosis of the bulbar conjunctiva, and the repair of the cornea thus favored.

Keratitis.—In treating disease of the cornea hot compresses are always indicated, never cold. As you know, the cornea is normally an avascular structure, and is dependent for its nourishment upon the tissues surrounding it. If these be diseased, a stasis in the nutritive supply of the membrane occurs, and ulceration ensues. The chief indication, therefore, in treating diseases of the cornea is to prevent this stasis. This is admirably accomplished by means of moist heat, provided it be properly applied. One of the most frequent forms of corneal ulceration that you will have to combat is phlyctenular keratitis. This disease occurs usually in children of a scrofulous diathesis, and there is no sadder sight, nor no example more striking of the injury which is wrought by the ignorant application of remedies by the laity, than those employed in this disorder. It is a matter of frequent experience in the ophthalmic clinics to hear the mothers of such children recite with pride a list of all kinds of harmful and disgusting substances with which they have poulticed the eye,—tea leaves, rotten apples, raw oysters, bread and milk, and potatoes are the favorite articles, and the persistency and the ignorance with which they are employed is most distressing to the intelligent practitioner. It may be well to state here, once for all, that poultices should

never be employed in diseases of the globe itself, although they are at times of service in inflammations of the adnexa.

Avoiding the use of the poultice, therefore, moist heat is best applied in diseases of the cornea by the ordinary compress, which should be maintained for ten or fifteen minutes at a time four or five times daily.

Hot compresses will be found to be an excellent stimulant to sluggish ulcers, and will also hasten the absorption of nebulæ. A few drops of scalding water, applied directly to a micotic ulcer, will exert a powerful antiseptic action upon it. In interstitial inflammation of the cornea also, when the whole ureal tract is inflamed, and the ciliary body especially is hyperemic, much relief will be afforded by the prolonged and unvarying use of hot fomentations, for three to eight hours daily at periods of every two hours. Indeed, where posterior synechiæ have not yielded to atropine, and where there is a rise in the intraocular tension, the mydriatic will have to be withdrawn, and you will be compelled to rely solely upon hot applications and the administrations of an alterative internally to lessen the inflammatory condition.

Pannus.—In the early stages of granular conjunctivitis hot water is frequently badly borne; as soon as the vascular condition of the cornea manifests itself, however, hot compresses should be inaugurated, for the inflammatory reaction which they occasion is frequently sufficient to cause the disappearance of the pannus.

One of the most distressing symptoms of phlyctenular disease is the photophobia and spasm of the orbicularis which it occasions, and you will often encounter great difficulty in applying the proper remedies to the eyes until you have caused these to subside. In urgent cases the eyes may sometimes be opened by immersing the entire head of the child in a bucket of cold water, the sense of suffocation and shock causing it to open its lids reflexly as it gasps for breath. An equally effective and less heroic measure consists in permitting a few drops of ice water to trickle between the lids, which are gently coaxed apart by the surgeon's fingers.

Iritis.—It is a matter of experience that dry heat is more efficacious than moist in soothing the pain of neuralgia. We will also find that in cases of iritis, when there is little or no secretion except the tears of reflex irritation, that the dry compress is the most efficacious, while in iritis secondary to inflammations of the cornea we will have recourse to the moist compress.

In addition to its action upon the blood-vessels of the iris and ciliary body, the hot compress is invaluable on account of its increasing the absorption of drugs which are administered for the

purpose of dilating the pupil. You will frequently find that mydriatics exert but little influence over the pupil in many cases of iritis, even when the synechiæ are not very tenacious. Leeching and cocaine will partly overcome this, but there is nothing so efficacious as bathing the eye with water as hot as it can be borne about ten minutes before the instillation of the mydriatic.

Miscellaneous Applications.

Traumatisms.—After penetrating wounds of the eye, particularly when the iris and the lens have been injured, and you have to deal with the complication of plastic iritis and traumatic cataract, in addition to the other treatment, which you will at once institute, you will find the continuous use of the ice compress to be a potent agent in combating inflammatory reaction and in preventing the invasion of noxious germs by reducing the temperature of the parts.

Suppurative Panophthalmitis.—Hot applications are grateful from the very onset in this class of cases and may be applied almost continuously. A convenient and satisfactory method is to cover the eyes with absorbent cotton that has been soaked in bichloride solution (1 : 3000).

Muscular Asthenopia.—The pain arising from this condition is often allayed and the symptoms at times made to disappear by the use of hot compresses, the heat actually increasing the contractile power of the weak muscles.

Diseases of the Inner Coats.—If there is any tendency to disease of the deeper structures of the eye, such as retinitis or neuritis, it is well to avoid the use of hot applications for fear of causing further mischief by increasing congestion in these delicate membranes.

A COMPACT, PORTABLE, STERILIZER FOR SURGICAL INSTRUMENTS AND DRESSINGS.

By H. G. Wetherill, M.D.,

Denver, Col.,

Professor of Gynecology, Medical Department University of Denver.

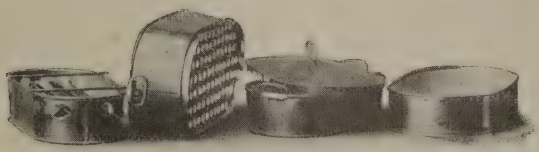
Sterilization of all materials which must be used in surgical work is now believed to be most easily and certainly secured by boiling, or by exposure to steam at the temperature of boiling water.

To secure the destruction of pyogenic organisms by this means many forms of sterilizers have been devised, and those for use in hos-

pitals or sanitariums have reached a point of perfection which makes them very satisfactory.

Portable sterilizers are to be found in the shops and instrument-stores, but they have seemed to me to be unnecessarily big and unwieldy for carrying, and at the same time lacking in sufficient room in the steam-chamber for all the towels, gauze, and dressings needed in a modern major operation.

The instrument I now have the pleasure to present to you for your inspection was designed to meet the needs of the surgeon or gynecologist for such an apparatus; the features sought after being



portability in small space and capacity in the steam-chamber; but, above all, sterilizing power of which there could be no doubt.

The surgical instruments are boiled in a soda solution in a pan about fifteen inches long, seven inches wide, and three inches deep, the steam-chamber rests upon the top of the instrument-pan, has a perforated bottom, and it is made with an extra section so that its capacity may be nearly doubled if necessary. For minor operations, where only a small amount of dressing material is needed, the increased space in the steam-chamber will not be required. The cover is made to fit the steam-chamber with or without the extra section.

When extended to its greatest capacity the steam-chamber has an area of about 800 cubic inches (for dressings), the water-pan having about 300 cubic inches (for instruments, the longest of which may be fifteen inches). Of course all these dimensions may be varied to suit the needs of any class of work or the fancy of any particular operator.

The joints between all the parts are very tight, and little steam escapes through them when the water is boiling actively.

The temperature of boiling water is easily secured and maintained in all parts of the steam-chamber, and the sterilization of materials

put in it must be complete for all practical purposes if the process is kept up for twenty or thirty minutes. Very dense wads of thick material might need more time, but gauze, towels, and the dressings ordinarily used certainly would not.

Dressings come out of this sterilizer after a half hour of steaming only slightly moist, not damp enough to interfere with their absorbing quality, if however perfectly dry dressings are desired it is an easy matter to bake the contents of the chamber *thoroughly* by taking it from the instrument pan and placing it on its side over the lamp or stove for a few minutes, in that way at once drying the contents and doubly sterilizing them.

As a means of applying heat when other sources are not at hand a lamp has been added to the instrument, and as it boils the water in the pan in from two to four minutes, depending on the quantity, and will hold enough alcohol to keep it going for the time necessary, its use must often prove advantageous.

Two troughs, three-quarters of an inch wide, ten inches long, with a slot a half inch wide between them for the free circulation of air, are set on legs three-quarters of an inch high. This lamp is filled with alcohol and set in a lamp-pan with holes made in its sides for the admission of air, the bottom of the lamp-pan is covered with water to the depth of half an inch to prevent the burning of the table on which it is placed, and as a precaution against fire in case the lamp is upset, or overflows as the burning alcohol becomes hot. The heat produced is intense and is concentrated on the bottom of the water-pan by the lamp-pan in such a way as to allow little loss of the heat, or blowing about of the flame. An asbestos-lined cover is provided as an extinguisher, but the easiest way to extinguish the flame is to dilute the alcohol remaining in the lamp with the addition of a little water, when it soon goes out.

The whole instrument is made of copper (tin lined), and is so constructed that it telescopes or nests, one part inside another, and when packed for carrying it is only seventeen inches long, eight inches

wide, and five inches high. It goes easily into an ordinary cabin-bag or telescope-bag of leather or canvas, and leaves ample room for surgical instruments, operating coats, dressings, rubber pads, etc.

The instrument shown is the first one made, and is crude and capable of some improvement, but it reflects great credit upon the painstaking workman who constructed it from the drawings, working out the patterns and proportions for himself.

The illustrations were kindly made for me by Mr. B. D. Straight, of Denver, Col., and show the detailed plan of the sterilizer and lamp very well indeed.

Such an instrument as this is well adapted to emergency work, and for operating in private houses.

For the purposes of the military and railroad surgeon a portable sterilizer, with facilities for heating it to the required temperature independent of the usual sources of heat-supply, must be a necessity;

for even preliminary and temporary dressings must be sterile, and, of course, no operation of any kind should be done in this day and generation without sterilizing all that comes in contact with the wound. The water with which the wound is cleansed should be clean (surgically) to start with (sterile), and the wound kept in every way as free from contamination (from the start) as is possible.

It is easier to keep clean from the beginning than to get a wound aseptic after it has once been infected, and the grave views a judge and jury may be asked to take of any neglect of these well-known and acknowledged necessary precautions might well determine railroad and other corporations to do all that is in their power to prevent infection from the time of the reception of the injury.

The lamp and lamp-pan of this sterilizer seem well suited to field work, and I can only hope they may fill the requirements of surgeons doing this kind of duty as well as the sterilizer as a whole seems likely to meet my own necessities.

MEMORANDUM.

THE USE OF ICHTHYOL IN ORCHITIS.

HAVING had a very happy result from the use of ichthyol in a case of orchitis, it is possible that some of the readers of the MAGAZINE would be willing to try it when this unfortunate complication presents.

December 27, 1895. A. B. applied to me for treatment in the second stage of gonorrhea, having undergone self-treatment for some ten days without improvement. Examination showed him to be in a febrile state; temperature 101.6° F.; pulse 105; coated tongue; feeling much out of sorts; an edematous condition of the foreskin; a profuse, muco-purulent, sanguineous discharge, which examination showed to contain gonococci; first urine cloudy; the second clear.

Permanganate of potassium solution irrigation 1:6000 was cautiously instituted, which was followed the next day by an improved condition, when cubebs and copaiba, āā ℥ v in capsules, three times times a day, were added to the treatment.

December 28, 1895. The discharge much improved, being less in quantity and free from blood; patient complained of slight pain in left groin, which he said was not uncommon, as he had experienced similar feelings off and on for some months past; first urine slightly cloudy; second clear; temperature 101.2° F.; pulse 105; treatment continued.

January 2, 1896. Temperature 102° F.; pulse 114; epididymitis with orchitis developed on left side; discharge gone. Treatment: Confined to his bed; put on exclusively milk diet; left testicle and cord enveloped in a 30 per cent. ichthyol ointment and elevated; pulsatilla, ℥ x, every hour.

January 6, 1896. Patient has been entirely free from pain during last four days; ichthyol renewed generously every other day; slight pain and swelling developed in left inguinal region; applied 30 per cent. ichthyol ointment over tender area.

January 10, 1896. Tenderness and swelling in left inguinal region entirely absent; patient declares that throughout treatment he has not experienced the slightest pain in or about the testicle or epididymis; swelling much subsided; strapped testicle with a gauze bandage and elevated it.

January 12, 1896. Patient has been attending his office for the last three days with no inconvenience; temperature 99° F.; pulse 84; says he has had no suffering during the whole attack; testicle much less indurated and softening; restrapped with gauze and applied the suspensory, which is very comfortable; pulsatilla discontinued.

January 17, 1896. Orchitis practically over. The patient is on regular diet and attends his office.

The only interesting feature of the case is the total absence of pain during the attack, which is unusual, and can be attributed, it would seem, solely to the early and free use of the ichthyol.

LEEDOM SHARP, LL.B., M.D.

ALUMNI NOTES.

DR. H. G. WETHERILL (class of '78) was recently elected Professor of Gynecology in the Medical Department of the University of Denver, at Denver, Col.

DR. A. O. J. KELLY (class of '91) has been appointed visiting physician to St. Mary's Hospital.

DR. W. B. DEWEES (class of '77) has received the degree of Doctor of Laws from Moore's Hill College, Moore's Hill, Ind.

HICCOUGH CURED BY TRACTION OF THE TONGUE.

PROFESSOR LÉPINE, of Lyons, stated that he had arrested and cured a case of hiccough of four days' standing by drawing the tongue out and keeping it outside of the mouth for a few minutes. He does not know whether the procedure is of any practical utility in such cases, but theoretically it is of interest. It may be asked, if rhythmical tractions of the tongue excite the respiratory centre, as they do in restoring respiration in cases of asphyxia, how can they inhibit this centre, as in the case observed? This apparent contradiction is explained by some experiments made by Professor Lépine in 1876, showing that the result of excitation depends, in the greatest part, on the state of the nervous apparatus concerned; so that, while excitation of the nerves at the base of the tongue will excite the respiratory centre when this is paralyzed, similar excitation will depress it if it is in a state of exaggerated excitability.—*Universal Medical Journal.*

EDITORIAL.

THE OPERATIVE TREATMENT FOR LOSS OF NERVE SUBSTANCE IN PERIPHERAL NERVES.

The frequency with which peripheral nerves are injured by various forms of accidents, and the deformity and loss of function that result, lend great interest to any study which adds to our knowledge of the treatment of these cases, and which therefore enables us to secure better results than have heretofore been obtained.

It has been repeatedly demonstrated that the function of a divided nerve may be restored if the ends are properly approximated. The proper course to pursue in those cases in which there is considerable loss of substance is, however, a much more difficult problem. The latest contribution to this subject is by Huber, of Ann Arbor (*Journal of Morphology*, Vol. xi, No. 3, 1895). The *Journal of the American Medical Association*, May 30, 1895, has made an excellent abstract of this article, from which we take the following:

The various methods which have been employed in the treatment of nerve injuries with loss of nerve substance may be grouped under the following heads:

(*a*) Nerve stretching (Schuller).

(*b*) Implantation of a nerve segment removed from a recently amputated limb, or from a lower animal.

(*c*) Tubular sutures (Vanlair).

(*d*) Union of ends with catgut threads, or a bundle of catgut threads (suture à distance, Assaky).

(*e*) Nerve flap from the central stump, or a flap from both central and peripheral stumps (autoplasie nerveuse à lambeaux, Létiévant).

(*f*) Grafting of the central end of the peripheral stump of a divided nerve to an accompanying nerve-trunk (greffé nerveuse, Létiévant).

(*g*) Cross suturing the long central and peripheral stump in cases where two accompanying nerves are cut obliquely, and grafting the central short stump to central long one, and peripheral short stump to peripheral long one (Létiévant, Tillmanns).

(*h*) Resecting the bone or bones in the extremity and suturing the nerve.

These various procedures have all been tried in practical surgery; in most cases the feasibility of the method was first demonstrated by experiments upon animals.

Huber has collected twenty-three cases, from these it will be seen that the operation for nerve-implantation has been performed fourteen times, eight times as a primary and six as a secondary operation. Of this number three are reported as successful, seven as improved, and four as failures. In one of the cases, at least, the report covers a period of but sixteen days after the operation, at which time sensation is said to have become fully re-established. Howell and Huber show, however, that in man sensation does not return to the peripheral part of a divided nerve until three months after suturing. Hence there can be no doubt but that in this case the sensory impulses were carried along one of the other cutaneous nerves distributed over the extremity. All experiments bearing on this problem show that the implanted portions always degenerate.

Huber's experiments were made on dogs. With but few exceptions the ulnar nerve was used. When implantation was made, a segment was taken from the sciatic of a cat. The length of the piece excised varied from four to eight centimetres. The details employed in experiments with other methods were simple and uncomplicated. In all cases asepsis and careful suturing were secured. The irritability of the nerves was examined by means of induction shocks from a DuBois-Reymond coil under such condition that the results obtained admit of comparison.

A number of animals were sacrificed from time to time in order to study the changes that occurred in the nerves experimented upon. It was found that the best method for demonstrating the developing axis-cylinder is to harden in Müller's fluid and to stain with Ströbe's aniline blue-safranin solutions. Huber shows that after primary implantation of a nerve segment between the resected ends of a peripheral nerve, the entire peripheral stump and about three-quarters of a centimetre of the central stump degenerate; the myeline and the axis cylinders of the implanted piece are absorbed within ten days after the operation. Regeneration begins in the central stump and proceeds centrifugally; it consists of a down-growth of the axis-cylinders of the nerve-fibres of the central end through the implanted segment and the peripheral part of the resected nerve. It requires at least 136 days for the regenerating median nerves to reach the peripheral part of the trunk, and 149 days in case of the ulnar. The down-growing axis-cylinders travel along and in the sheaths of the old and implanted nerves.

He further found that in the flap method the nerve-flap degen-

erates throughout its whole extent; that in the central stump were many degenerated fibres, due to the traumatism inflicted while making the flaps, and that the budding axis-cylinders were largely lost in the connective tissue between the nerve ends.

Without going into further details, it is evident that the results of Huber's experimental research are of great practical importance. The following conclusions are certainly warranted from his study of the literature of this subject as well as from his personal observations:

(1) That it is possible to restore the functional activity in a nerve with loss of substance, if the ends are united with a segment taken from some other nerve-trunk, with catgut threads, or with a bone-drain or tubular suture.

(2) Of all methods enumerated and tried, the best results are to be obtained after the implantation of a nerve segment, the two ends of which are sutured by several catgut sutures to the end of the resected nerve.

(3) The regeneration of the peripheral end, which always degenerates so that only the sheaths of Schwann are met with, is the result of an outgrowth of new axis-cylinders from the central stump; the budding axis-cylinders following the paths of least resistance through the substance interposed between the ends of the nerve, thus reaching the peripheral part of the nerve.

(4) Since the fibres in an implanted nerve segment degenerate so that only the collapsed sheaths containing a small amount of nucleated protoplasm remain, and the catgut threads used in a suture *à distance* and the bone-tube employed in a tubular suture are almost entirely absorbed before regeneration has occurred to any extent, it must be concluded that the implanted substances can serve only as a guide to the budding axis-cylinders.

(5) That the degenerated fibres of an implanted nerve offer more favorable mechanical condition for the down-growing axis cylinder than does the connective tissue, replacing various other substances, is shown by the fact that the new nerve-fibres have a much straighter course and more regular arrangements in the nerve-implantation experiments than in the experiments with catgut and bone drains.

(6) The same results may be obtained with these methods whether used in primary or secondary operations. The return of function takes place more slowly in secondary operations.

(7) Nerve-flap formation from central or peripheral stump is not recommendable, because (1) the flap degenerates; (2) the union with the central end is not so favorable for the budding axis-cylinders as in nerve-implantation; and (3) the growing fibres seem to bud into the connective tissue and not into the reflected flap.

(8) Regeneration through an engrafted connection between the peripheral part of a divided nerve and an accompanying uninjured trunk is not possible.

(9) In the Létiévant-Tillmanns operation (cross suturing the long ends of two divided nerves and engrafting the short ends to the accompanying long stump) regeneration of but one of the peripheral segments of the two injured nerves can be hoped for; the other peripheral segment remains degenerated. As there is no reason why a regeneration of both the peripheral stumps may not be attained after the implantation of a nerve segment between the respective ends of the injured nerves, preference should be given to the latter method.

A HIGHER STANDARD FOR ADMISSION TO THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF PENNSYLVANIA.

We desire to call the attention of the alumni and friends of the University, and of our readers generally, to the following action of the Board of Trustees at their meeting held in May of this year. The tuition fee in the Department of Medicine was increased to $200 per annum, the increase to take effect with the session beginning October, 1896. This will not affect students who have already matriculated and have been in attendance upon instruction in the Department of Medicine. At the same meeting the Board of Trustees adopted the following requirements for admission to the first-year class of the Department of Medicine:

A. Any candidate who may have received a degree in Arts or Science from a college recognized by this University will be admitted without examination. Students who have satisfactorily pursued the two-years' course in Biology of this University will be exempt from the entrance examination; and UNTIL 1899 any candidate who has passed the entrance examination of a recognized college, or is a graduate of a recognized normal or high school, or academy of equal rank, may enter without examination.

1896.—*B.* Candidates for admission to the first-year class in 1896 who do not possess the qualifications specified in paragraph *A* will be required to pass examinations in the following studies:

ARITHMETIC.—The fundamental operations of addition, subtrac-

tion, multiplication, and division as applied to whole numbers, common and decimal fractions; denominate numbers; percentage.

ELEMENTARY ENGLISH.—Grammar, as in Abbott's *How to Parse.*

GEOGRAPHY.—Of the world.

SPELLING AND ENGLISH COMPOSITION.—A composition upon an assigned subject, taken from United States History, of at least 200 words, to be correct in spelling and grammar.

UNITED STATES HISTORY.—As in Eggleston's *History of the United States.*

PHYSICS.—As in Carhart & Chute's or Avery's *Elements of Physics.*

1897.—*C.* Candidates for admission to the first-year class in 1897 who do not possess the qualifications specified in paragraph *A* will be required to pass examinations in the following studies:

ENGLISH.—(*a*) Grammar; (*b*) reading and composition, Shakespeare's *Merchant of Venice,* and Longfellow's *Evangeline.* A short essay, correct in spelling, punctuation, and grammar, on a subject chosen from one of these works, will be required.

HISTORY.—United States.

GEOGRAPHY.—Of the world.

MATHEMATICS.—(*a*) Arithmetic, including use of Logarithms; (*b*) Algebra to quadratic equations.

PHYSICS.—As in Carhart & Chute's or Gage's *Elements of Physics.*

LATIN.—(*a*) Grammar; (*b*) two books of Cesar's *Gallic War. In place of Latin, Plane Geometry* may be offered.

1898.—*D.* Candidates for admission to the first-year class in 1898 who do not possess the qualifications specified in paragraph *A* will be required to pass examinations in the following studies:

ENGLISH.—(*a*) Grammar; (*b*) reading and composition, Shakespeare's *Merchant of Venice,* Milton's *Comus* and *Lycidas,* Longfellow's *Evangeline,* and Macaulay's *Essays on Milton and Addison.*

HISTORY.—United States.

GEOGRAPHY.—Of the world.

MATHEMATICS.—(*a*) Arithmetic, including use of Logarithms; (*b*) Algebra through quadratic equations; (*c*) Plane Geometry.

PHYSICS.—As in Carhart & Chute's or Gage's *Elements of Physics.*

LATIN.—Four books of Cesar's *Gallic War;* or,—

FRENCH.—Three hundred pages of contemporary prose; or,—

GERMAN.—Two hundred pages of contemporary prose.

In place of the language, Solid Geometry may be offered.

1899.—Candidates for admission to the first-year class in 1899 will be required to pass examinations in the following studies, which

are the examinations at present required for entrance to the Freshman Class in the College of the University:

ENGLISH.—(*a*) Grammar; (*b*) (1) Shakespeare's *Merchant of Venice;* (2) *Twelfth Night;* (3) Milton's *L'Allegro, Il Penseroso;* (4) *Comus* and *Lycidas;* (5) Longfellow's *Evangeline;* (6) the Sir Roger de Coverly Papers in the *Spectator;* (7) Macaulay's *Essays on Milton* and *Addison;* (8) Webster's first *Bunker Hill Oration;* (9) Irving's *Sketch Book;* (10) Scott's *The Abbott.* For numbers 2, 4, and 5 of the above may be substituted three of the following: Darwin, *Origin of Species;* Huxley, *Physiography, an introduction to the Study of Nature;* Tyndall, *Heat as a Mode of Motion;* George Eliot, *Middlemarch.*

HISTORY.—(*a*) History of the United States; (*b*) Greek and Roman.

MATHEMATICS.—(*a*) Arithmetic; (*b*) Algebra (including factoring, fractions, simple equations, and simultaneous equations of the first degree); (*c*) Algebra to the end of quadratic equations (including ratio, proportion, arithmetical and geometrical progression, surds and imaginaries); (*d*) Plane Geometry.

Additional examinations required: Either LATIN.—(*a*) Latin grammar; (*b*) Latin prose composition; (*c*) Cesar (four books of the *Gallic War*); (*d*) Vergil (first six books of the *Æneid*, with the prosody); (*e*) Cicero (six orations, including the four against Catiline).

GREEK.—(*a*) Greek Grammar; (*b*) Greek prose composition; (*c*) Xenophon (first four books of the *Anabasis*); (*d*) Homer (first three books of the *Iliad*, with the prosody); or Latin A, B, C, D.

FRENCH.—(*a*) A thorough knowledge of elementary grammar; (*b*) three hundred pages of contemporary prose.

GERMAN.—(*a*) Collar-Eysenbach's *German Lessons;* (*b*) three hundred pages of contemporary prose. Two of these languages and solid geometry or physics; or, one of the above languages as above and solid geometry and physics.

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.,

ASSISTED BY

M. HOWARD FUSSELL, M.D., AND A. O. J. KELLY, M.D.

Civil Responsibility of Sexual Perverts.

Hamilton (*American Journal of Insanity*, April, 1896) gives his views on the above important subject in a most instructive article which can be abstracted imperfectly, and the reader is referred to the original article. To quote one paragraph,—When contracts or wills are made by one woman under the influence of another, something more should be conceded as an invalidating factor than the existence of a pertinent and dominating delusion, for there is no stronger dominating influence than a continued appeal to the passions, and especially the sexual feelings; and the apparently harmless intimacy of two women may, if misunderstood, lead to the perpetration of great wrongs and perversion of property.

As the matter of proof is so difficult, and the rights of women so zealously guarded by sentimental judges, the matter of determining the degree and depth of the intimacy is often hedged by seemingly insurmountable difficulties, which are increased by the indignation aroused by the merest insinuation that women, in certain ways, can know each other too well.

Leucocytosis in Tuberculous Processes.

Stein and Erbmann (*Deutsches Archiv für klinische Medicin*, Vol. LVI, Parts 3 and 4, December 13, 1895) made repeated observations concerning the number of leucocytes in the blood of patients affected with various forms of tuberculosis, and in various stages of the affection. Their observations lead them to the opinion,—(1) that in cases of beginning phthisis the white blood-corpuscles are normal in number; (2) that in more advanced cases in which the tuberculous process is localized to the apex of the lung, or in cases of more extensive distribution without cavity formation, the leucocytes are likewise normal in number; (3) that after attacks of hemoptysis, there occurs a moderate leucocytosis, which ceases with the cessation of the bleeding; (4) that the leucocytes are normal in number in advanced cases of chronic infiltrating tuberculosis, with or without slight destruction. The leucocytes are increased in number in cases with cavity-formation; in cases of chronic suppuration as a result of carious processes; in cases of terminal exudative inflammatory processes; in cases of hyperplasia of the lymph-glands without extensive destruction. They conclude that when in a tuberculous individual in whom there exists no chronic suppuration nor exudative inflammation, leucocytosis is

found, cavity formation in the lungs can be looked upon as demonstrated. When in a given case in which repeated examinations throughout a long period showed leucocytes in normal numbers, an increase in the number of leucocytes begins to manifest itself, the time of such occurrence can be looked upon the time of the beginning of the destructive process. In a case of tuberculosis with leucocytes normal in number, the presence of a cavity of any great size can be excluded. The cause of the leucocytosis is not the tuberculous virus as such, but rather a secondary infection, a septic process, the result of the activity of various highly virulent bacteria. The agent causative of the leucocytosis is the destruction of the lung tissue, as thereby there ensues a direct entrance into the lymph- and blood-channels of pus elements, leucocytes, and therefore the leucocytosis.

Intubation of the Larynx.

Martin (*Gazette Médicale de Strasbourg*, February 1, 1896) concludes his article as follows:

(1) The use of antidiphtheritic serum has diminished the number of operations. From 1887 to 1894, 36 patients in every 100 with diphtheria were operated upon. In the last six months, since serum has been used, there have been 14 operations in every 100 cases.

(2) From 1887 to 1894, the mortality of cases of operation was 77 per cent. In the last six months 23.5 per cent.

In those operated upon there were three tracheotomies and one death, and sixty-four intubations with eight deaths,—or 13.5 per cent. of deaths in intubation where serum was used. The writer thinks this speaks well for the serum treatment.

Cause of Sudden Deaths after Antitoxin Injections.

Seibert and Schmyzer (*New York Medical Journal*, May 30, 1896) experimented upon animals to endeavor to solve the above problem; they injected directly into the blood-current fresh antitoxin, old antitoxin, solutions of carbolic acid, and, lastly, air.

They arrived at the following conclusions:

(1) Antitoxic serum does not seem to be capable of causing speedy death or threatening symptoms, even though brought quickly into the blood-current in very large doses.

(2) The carbolic acid used to preserve the serum is in too weak doses to cause the characteristic convulsions which occurred in animals killed with carbolic acid.

(3) Even small quantities of air will cause severe disturbances and ultimate cessation of breathing in every animal experimented upon. These disturbances are entirely analogous to the symptoms reported as preceding the sudden deaths after antitoxin injections. In view of these facts, we here express our firm opinion that the sudden deaths reported after antitoxin injections were caused by injected air and *not* by antidiphtheritic serum.

Anemic Conditions and Gastro-Enteroptosis.

Agéron (XIV Kongress für innere Medicin in Wiesbaden, April 8-11, 1896, *Centralblatt für innere Medicin*, No. 17, 1896) directs attention to the occurrence of marked disturbances of nutrition as evidenced by anemia and chlorosis, the result of gastro-enteroptosis. The cause of the ensuing anemia is found in the very

great disturbance of the motor power of the sunken stomach. A simple test-meal, consisting of bread and milk, is often found remaining in the stomach five or six hours after ingestion. Naturally the customary treatment of the anemia with iron will be found useless, if one does not at the same time institute measures tending to improve the deranged motor function of the stomach.

Gouty Affections of the Heart.

Schott (XIV Kongress für innere Medicin in Wiesbaden, April 8–11, 1896, *Centralblatt für innere Medicin*, No. 17, 1896) remarks that it has been only lately, since Fothergill made mention of the subject, that attention has been given to gouty affections of the heart, and refers to the difficulty attending such a diagnosis. It is only clinical experience in association with pathological-anatomical investigation that will be productive of knowledge of the subject. In referring to personal observations of his own, he mentions only cases whose origin can be traced to gout and reports two cases of aortic stenosis, further myocarditic processes, motor and sensory neurosis, of the latter especially angina pectoris. There are many cases of gouty processes in which the heart is secondarily involved,—*e.g.*, gouty affections of the stomach, kidney lesions, neuritic processes, brain and spinal-cord affections, etc. Gout is further particularly liable to be associated with other diseases, saturnism, diabetes, anemia, chlorosis, etc. A fruitful field for further investigation.

Incontinence of Urine Inherited by an Entire Family from their Father.

Monro (*Lancet*, March 14, 1896) details brief histories of all the members of a family as at present constituted, five girls and one boy (one child died, aged 6 weeks, of whooping-cough), all of whom are affected with incontinence of urine. They range in age from 5 to 18 years. The two elder children, girls, are always more affected towards the menstrual period. The incontinence affects most all of the children alike by day and by night. Two of the children were subject to fits which began during early childhood; and they showed also other signs of degeneracy. The father suffered with nocturnal incontinence until he was a big lad, but not since his wife has been acquainted with him. He is said to be nervous, but is not known to have had fits. A brother of the father and his family, six boys and one girl, are free from incontinence. The patients are seemingly satisfied with their inheritance, being disposed not to persevere with any medication not yielding immediate brilliant results.

Chlorosis, with Especial Reference to its Treatment by Intestinal Antiseptics.

Townsend (*Boston Medical and Surgical Journal*, May 28, 1896) details the results of his investigations regarding the efficacy of various methods of treating chlorosis. He gives a tabulated summary of treatment showing the average gain in hemoglobin per week. Beta-naphthol, two grains three times daily (for intestinal antisepsis), thirty cases, 1.85 per cent.; Blaud's iron pills, five grains three times a day, thirty-one cases, 5.07 per cent.; cathartics alone, seven cases, lost 1.50 per cent. Twelve cases treated with Blaud's pills after a preliminary course of beta-naphthol exhibited an average weekly increase of 6.70 per cent.; while nineteen cases treated with Blaud's pills without such preliminary treatment with beta-naphthol showed an increase of but 4.50 per cent. A further series of twenty-eight cases

was observed from two to seven weeks, or an average of 4.3 weeks. They were all treated with two grains of beta-naphthol, in tablet form, and five grains of Blaud's iron pills three times a day. The average gain in hemoglobin per week was 7.9 per cent., the maximum gain being 20 per cent. per week for two weeks in one case, 14 per cent. for three weeks in another, 13 per cent. for four weeks in another, while another patient averaged a gain of 11.4 per cent. per week for five weeks. The average amount of hemoglobin possessed by the patients before beginning the treatment was 48 per cent. After 4.3 weeks of treatment it was 82 per cent. The results of the combined treatment, as will be seen, are considerably better than those obtained with iron alone, and much better than those with beta-naphthol alone. The therapeutic results of inducing intestinal antisepsis are disappointing, a fact to which Shattuck referred in discussing the paper.

The Relations of Alcoholic Indulgence to Insanity.

Bannister and Blumer (*American Journal of Insanity*, January, 1896) thus sum up their opinions regarding the effects of alcohol in the production of insanity: Alcoholic excesses produce insanity, being directly the cause of at least 10 or 12 per cent. of the cases, and probably of a somewhat larger percentage. Indirectly they are among the causative factors of a very large proportion of cases that cannot be directly credited to alcohol. Moderate drinking is a very indefinite term, and this fact alone makes it impossible to utilize satisfactorily any statistics as to its effects in producing mental diseases. There is, however, no reason to believe that moderate indulgence in alcohol is especially conducive to mental health in the average individual, and there is, on the other hand, a certain amount of physiological *a priori* presumption to the contrary. To the victim of hereditary taint or the neurotic it is undoubtedly often disastrous in its effects in this direction.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

GWILYM G. DAVIS, M.D., M.R.C.S., AND ELLWOOD R. KIRBY, M.D.

Laparotomy in Tuberculous Peritonitis.

Gatti (*Gazz. degli Ospeduli*, April, 1896) has experimented upon dogs, guinea-pigs, and rabbits. In these animals the parts first attacked and most seriously affected are the great omentum, the gastro-hepatic and gastro-splenic ligaments. In guinea-pigs the caseous form predominates, in dogs the fibrous, and in rabbits both exist.

In guinea-pigs a thickening of the great omentum just below the stomach is very early observed; in dogs and rabbits there is first a stage of miliary tubercles; second, confluence of the tubercles with great increase in the thickness of the omentum; third, the omentum becomes tumefied.

Laparotomy has no effect when the tubercle is not fully developed.

During the first few days after the operation there are no macroscopic modifications to be seen in the tubercles, but a small quantity of red serous fluid is found in the peritoneal cavity. From seven days to a month the tubercles are found to be increased, and only after a month do they begin to show a diminution.

In many animals this decrease was only macroscopic, in others microscopic as well.

Histologically, from eleven to twelve days after the laparotomy, there is no increase of the lymphoid cells; no phagocytosis in guinea-pigs. There is no development of the fibro-plastic cells as described by some authors.

The results of the author's observations show that healing takes place by a degeneration of the epithelial cells, independently of phagocytosis, without the formation of new connective tissue, contrary to what has been previously pointed out by many authors.

As to the factors which stimulate this process, the author directs attention to the serous fluid found one, three, and five days after the operation, which seems to saturate the tuberculous masses, exerting an attenuating action on the bacilli.

Suture of the Heart.

Cappelen (*Norsk Magazin for Loegevidenskaben*, March, 1896) reports the following case: A man, aged 24 years, had some hours before admission received a stab-wound in the left side. He went home alone, and about one hour afterwards was found lying in a pool of blood. On admission to the hospital he was found unconscious; the pulse could not be felt, and no heart impulse could be felt, although heart sounds could be heard to the right of the sternum. In the fourth left intercostal space, in the mid-axillary line, parallel with the rib, was a punctured, non-bleeding wound, about one inch in length. After a camphor injection the patient began to breathe and a pulse could be felt. The left side of the chest did not move on respiration.

Under chloroform narcosis the fourth rib was resected; the pleural cavity was found partially filled with blood and compressing the lung. After evacuating the blood the lung dilated and was found not to have been wounded.

On resecting the third rib a wound was found about one inch in length in the pericardium.

The sac was filled with blood, and by enlarging the wound a wound was found in the left ventricle, about two centimetres in length, from which all the hemorrhage came. The wound was sutured, after which the hemorrhage ceased. The heart was sutured with difficulty on account of the frequent pulsations. The pulse after the operation was very quick and feeble, but improved after a subcutaneous saline injection.

The patient died two and a half days after the operation.

At the necropsy it was found that a large branch of the coronary artery had been wounded; the wound had begun to heal, but there was evidence of pericarditis, and various bacteria were found in the fibrinous exudation.

Fracture of the Patella.

Bähr (*Archiv für Unfallheilkunde*, Band 1, Heft 1, 1896) points out that indirect fracture of the patella usually occurs just below the middle of the bone and at its thickest part, and suggests as an explanation of this clinical fact that the bone gives way at the junction of its supported and unsupported parts, and that these parts differ in their osseous structure.

The difference between the construction of the upper and lower parts of the patella may be seen on sawing through the middle of this bone in a vertical direction.

In the former there are two thick bands of compact tissue running beneath the anterior and posterior surfaces, which bands are connected by perpendicular trabeculæ.

In the lower part the posterior layer of the compact tissue is wanting, and open spongy tissue reaches almost to the surface. The short trabeculæ in the lower half of the patella become more and more oblique. The author is disposed to agree with Chaput, that there is in certain individuals a predisposition to fracture of the patella, as he has found on the examination of numerous specimens that some bones are weaker than others.

Muscular contraction alone will not cause fracture of a normal patella.

Indirect transverse fracture of this bone is believed to be caused by sudden tension of the ligamentum patella, whilst the knee is semiflexed.

The prognosis of this injury is not thought to be quite so favorable by Bähr as is usually considered by many surgeons; as it is often associated with laceration of other soft parts about the knee-joint, and is followed by long-continued atrophy of the quadriceps and restricted flexion of the joint.

These bad results are quite independent of any special form of treatment.

The Radical Treatment of Prostatic Hypertrophy.

Bruns (*Mittheilungen aus den Grenzgebieten der Medizin und Chirurgie*, Band I, Heft 1), from a careful study of available clinical records, draws the following conclusions on the present position of castration as a method of treating hypertrophy of the prostate.

The results of this operative treatment agree with those of experimental research in showing that there is a close physiological connection between the prostate and the testicles, and that the development and healthy condition of the former depends upon the integrity of the latter. In a large proportion—83 per cent. of 148 cases collected by the author—castration was followed by a decided wasting of the prostate.

This wasting usually begins very soon after the operation, and in the course of a few weeks the organ is reduced to almost its normal volume.

In the very soft forms of prostatic enlargement the prognosis of castration is much more favorable than in cases in which the prostate is tough and firm.

There can be no doubt that castration is not only followed by reduced vascularity, but also of shrinking and fibroid degeneration of the glandular tissue.

As the vascular supply of the prostate is independent of that of the testicles, this atrophic change can only be attributed to a nervous influence.

Although after castration the restoration of the functions of the bladder is less certain than atrophy of the prostate, the surgeon may fairly anticipate that the operation will result in a decided relief in a large proportion of cases, and in complete cure in many.

Bruns arranges the successful cases in three groups.

The first comprises the cases of dysuria without retention; the operation is usually followed by the cessation of the frequent and urgent desire to pass the urine.

Even after long-continued dribbling, the urine may be discharged in a full stream.

Prostatic subjects suffering from retention, who for some few weeks only before the operation have been compelled to use the catheter, are, as a rule, able to dispense with this instrument and to pass urine spontaneously.

Those who have suffered from chronic retention, which has necessitated for a long time the continued use of the catheter, may be relieved after castration from the necessity of thus emptying the bladder.

In most cases which have been treated by operation, there is, if not complete cessation, a considerable alleviation of the symptoms of vesical catarrh.

Double castration, although an easy operation, and in itself free from any immediate danger, is open to serious objections even in the patients advanced in years.

Cases have been recorded in which it has been followed by nervous depression and mental apathy.

For this reason the author is inclined to favor section and ligature of the vas, as the results obtained by this latter operation are very encouraging.

At the present time the most certain method of treating prostatic hypertrophy, especially in the earlier stages of the disease, is double castration.

THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D., AND ARTHUR A. STEVENS, M.D.

Report of the American Pediatric Society's Collective Investigation into the Use of Antitoxin in the Treatment of Diphtheria in Private Practice.

At the eighteenth annual meeting of the American Pediatric Society, held at Montreal, May 26, 1896, a committee composed of Dr. L. Emmett Holt, Dr. W. P. Northrup, Dr. Joseph O'Dwyer, and Dr. Samuel S. Adams made a report upon the above subject, summarized as follows:

Summary.—(1) The report includes returns from 615 physicians. Of this number, more than 600 have pronounced themselves as strongly in favor of the serum treatment, the great majority being enthusiastic in its advocacy.

(2) The cases included have been drawn from localities widely separated from each other, so that any peculiarity of local conditions to which might be ascribed the favorable reports must be excluded.

(3) The report includes the record of every case returned except those in which the evidence of diphtheria was clearly questionable. It will be noted that doubtful cases which recovered have been excluded, while doubtful cases which were fatal have been included.

(4) No new cases of sudden death immediately after injection have been returned.

(5) The number of cases injected reasonably early in which the serum appeared not to influence the progress of the disease was but nineteen, these being made up

of nine cases of somewhat doubtful diagnosis, four cases of diphtheria complicating measles, and three malignant cases in which the progress was so rapid that the cases had passed beyond any reasonable prospect of recovery before the serum was used. In two of these the serum was of uncertain strength and of doubtful value.

(6) The number of cases in which the patients appeared to have been made worse by serum was three, and among these there is only one new case in which the result may fairly be attributed to the injection.

(7) The general mortality in the 5794 cases reported was 12.3 per cent.; excluding the cases moribund at the time of injection or dying within twenty-four hours, it was 8.8 per cent.

(8) The most striking improvement was seen in the cases injected during the first three days. Of 4120 such cases, the mortality was 7.3 per cent.; excluding cases moribund at the time of injection or dying within twenty-four hours, it was 4.8 per cent.

(9) The mortality of 1448 cases injected on or after the fourth day was 27 per cent.

(10) The most convincing argument, and to the minds of the committee an absolutely unanswerable one, in favor of serumtherapy is found in the results obtained in the 1256 laryngeal cases (membranous croup). In one-half of these recovery took place without operation, in a large proportion of which the symptoms of stenosis were severe. Of the 533 cases in which intubation was performed, the mortality was 25.9 per cent., or less than half as great as has ever been reported by any other method of treatment.

(11) The proportion of cases of broncho-pneumonia—5.9 per cent.—is very small and in striking contrast to results published from hospital reports.

(12) As against the two or three instances in which the serum is believed to have acted unfavorably upon the heart might be cited a large number in which there was a distinct improvement in the heart's action after the serum was injected.

(13) There is very little, if any, evidence to show that nephritis was caused in any case by the injection of serum. The number of cases of genuine nephritis is remarkably small, the deaths from that source numbering but fifteen.

(14) The effect of the serum on the nervous system is less marked than upon any other part of the body; paralytic sequelæ being recorded in 9.7 per cent. of the cases, the reports going to show that the protection afforded by the serum is not great unless injections are made very early.

At the close of its presentation, the society voted to accept the report of the committee, and after a full discussion it was decided to embody its conclusions in the following resolutions:

(1) *Dosage.*—For a child over two years old the dosage of antitoxin should be in all laryngeal cases with stenosis, and in all other severe cases, 1500 to 2000 units for the first injection, to be repeated in from eighteen to twenty-four hours if there is no improvement; a third dose after a similar interval, if necessary. For severe cases in children under two years and for mild cases over that age the initial dose should be 1000 units, to be repeated as above, if necessary; a second dose is not usually required. The dosage should always be estimated in antitoxin units and not of the amount of serum.

(2) *Quality of Antitoxin.*—The most concentrated strength of an absolutely reliable preparation.

(3) *Time of Administration.*—Antitoxin should be administered as early as possible on a clinical diagnosis, not waiting for a bacteriological culture. However late the first observation is made, an injection should be given unless the progress of the case is favorable and satisfactory.

Comparative Value of Remedies for Uric Acid.

Levison (*Universal Medical Journal*, June, 1896) has examined the new remedies recommended as solvents of uric acid, not only for concretions in the kidneys, but for the uratic deposits in gout. Evidence from literature, as well as his own experience, leads him to the conclusion that neither piperazine, lycetol, nor lysidin had any special remedial property in this affection. They combine readily enough with uric acid to form soluble salts, but when given *per os* and excreted in the urine they lose that property completely or in greater part. Another new remedy, urocedin, is not superior to the citrate of sodium so long in use.

More remarkable results are obtained from urotropin, introduced by Nicolati. This remedy can be taken in doses of one to two grammes a day. It is rapidly excreted by the kidneys, and can be demonstrated by bromine water, which gives a yellow, crystalline sediment. Levison found that the urine of a person who had taken one and a half grammes of urotropin was able to dissolve small quantities of uric acid by passing through a filter covered with one-half gramme of uric acid; when the uric acid was digested for twenty-four hours with the urine containing urotropin, as much as 16 to 18 per cent. of it were dissolved. Concretions of uric acid treated with this urine were somewhat diminished in weight, and their surface became somewhat uneven and grayish instead of yellow. Still another property is conveyed to the urine by urotropin,—it is rendered bactericidal and aseptic. The urine could be held for many days in the thermostat at a temperature of 98.6° F. without becoming foul, even when different cultures of bacteria were added to it, while samples of urine without urotropin fermented and putrefied in a very short time. Urotropin seems, therefore, to be indicated in suppurative diseases of the kidneys and bladder. It must, however, be observed that in one experiment the urine containing urotropin began after some days to precipitate a crystalline sediment of phosphate of lime; if such a precipitate took place in the living body, it would, of course, be a serious inconvenience in the use of the remedy.

The Serotherapy of Exophthalmic Goitre.

Gioffredi (*Semaine Médicale*, No. 26, 1896) reports the case of a woman, 32 years of age, afflicted with exophthalmic goitre, in whom improvement followed hypodermic injections of the blood-serum of a thyroidectomized dog presenting all the symptoms of cachexia strumipriva. In the course of forty-seven days thirty-seven injections of from a half to one cubic centimetre each were made; and after an interval of two weeks several additional injections, each of two cubic centimetres, in the course of twenty days. During the treatment there was almost complete cessation of headache, anorexia, trembling, diminution of the exophthalmos, improvement in the general condition, and a return of menstruation. The result, however, was but temporary, as the symptoms returned gradually upon the suspension of treatment. When the dose of serum exceeded one cubic centimetre there was a slight febrile reaction.

Charcoal as a Therapeutic Agent.

Wild (*Therapeutic Gazette*, June 15, 1896) has recently been awarded the Parkins prize of the Royal College of Physicians of Edinburgh for an essay on this topic.

He concludes that externally, as a local application to foul ulcers, or mixed with water for an injection into the rectum or vagina in cancer or other ulcerative disease of those cavities, charcoal is useful. In certain cases much benefit ha

resulted from its use, especially with respect to diminishing the smell which so often renders this class of patients difficult to treat, either in a hospital ward or in a small room. It is, however, a very dirty application if used in sufficient quantity, and for ordinary cases our present antiseptic drugs are more cleanly and more effectual, and are not likely to be superseded by charcoal.

Internally it is of value in cases where there is undue decomposition of the contents of the alimentary canal, such as dilatation of the stomach, certain forms of gastric indigestion, intestinal indigestion, and other conditions where the alimentary canal contains abnormal toxic substances, and in certain specific diseases presenting local lesions of the alimentary canal. We know that many of these, such as cholera, typhoid fever, dysentery, and certain forms of diarrhea, are due to living organisms, and of recent years the view is more and more gaining ground that many of the symptoms in these cases are due not so much to the living organisms as to the formation of various toxic substances (*e.g.*, the typho-toxin of Brieger and Fränkel), which exert an injurious action upon the alimentary canal, or by their absorption from it produce a more general intoxication.

For the treatment of these diseases the use of intestinal antiseptics is increasing, and good results have been frequently reported, though, on the other hand, only small doses of the antiseptic drugs can be safely administered in this manner, and it is difficult to insure their arrival at the particular part of the alimentary canal where they are needed.

Charcoal appears worthy of further trial in these classes of cases, for, although devoid of antiseptic properties, it may act by oxidizing the chemical substances formed during abnormal decomposition or the various toxins produced by pathogenic organisms. This action may be a direct one, or indirectly through the aërobic process of putrefaction, and it is possible that a supply of oxygen may modify the metabolic processes of the pathogenic organisms themselves and render them or their products less virulent. The power of charcoal to remove alkaloids from solution is also worth considering, as certain toxins and ptomaines are possibly of an alkaloidal nature. Charcoal may not be a direct curvature agent in cases where it is of service; it may, however, prevent auto-intoxication from the alimentary canal, and so prevent serious symptoms and enable the tissues of the organism to cope successfully with a disease that would otherwise prove fatal.

It may also be borne in mind that, as suggested by Dr. Lauder Brunton, the mechanical effect of charcoal may have some additional value either as a laxative or in removing mucus from the walls of the alimentary canal.

Charcoal, being non-poisonous, can be given in large doses; from two to six teaspoonfuls a day, gradually increased, is the quantity usually recommended. Dr. Belloc himself took 500 grammes (over a pound) in one day without bad effects. It can, at any rate, do no harm; the only evil result recorded is the rare formation of a mass causing obstruction of the alimentary canal; this can be avoided by mixing it with a sufficient quantity of water before administration.

Some patients object to taking charcoal, though it is tasteless, and it has been prescribed under other names; for example, "magnesie noir" is not unfrequently used in France, and the corresponding name of "black magnesia" is sometimes heard in England.

Many of the older writers are very particular as to the variety of charcoal used for medical purposes. That this may really be an important factor is shown by the experiments upon the absorption of gases by charcoal, above mentioned. It was found that charcoal obtained from some kinds of wood absorbed much larger volumes of gas than that obtained from other woods. Dr. Belloc is very emphatic as

to the superiority of poplar charcoal, prepared in a particular manner, and the commission of the French Academy confirm his statement and go on to say that, after careful examination and analysis, "the charcoal of Dr. Belloc did not seem to differ from other charcoals except in its extreme porosity."

The object of this research, commenced at the suggestion of Professor Leech, over four years ago, and carried out in the Pharmacological Laboratory of the Owens College, was to ascertain, if possible, whether there were any pharmacological grounds for the therapeutic use of charcoal.

OBSTETRICS.

UNDER THE CHARGE OF

BARTON COOKE HIRST, M.D.,

ASSISTED BY

RICHARD C. NORRIS, M.D., AND FRANK W. TALLEY, M.D.

Accouchement Forcé and Version for Marginal Placenta Previa.

Fournier (*Archives de Gynécologie et de Tocologie*, November 1, 1895) reports the case of a patient in her fifth pregnancy who came under his observation, giving a history of hemorrhage. At the last pregnancy she had lost a pint of blood. The cervix was artificially dilated and a dead child delivered by podalic version. The placenta was marginally inserted. Fournier gives the following *résumé* of the treatment of placenta previa: Before dilatation is complete, in primiparæ, rupture of the membranes or vaginal tampons; in multiparæ, forcible introduction of the hand and version. After complete dilatation version is indicated. In all cases the delivery should be hastened in view of the great danger to the mother.

Concerning Puerperal Bradycardia.

Dr. Julius Neumann (*Monatschrift für Geburtshülfe und Gynäkologie*, Band II, Heft 4) has made observations in 500 women in childbirth, from a study of which he has deduced the following:

The pulse increases during the pains. Between the pains, even in the first stage, he often finds a slow and irregular pulse, irregularity being more frequently found than slowness. During the second stage there is no increased rate between the pains. Most frequently he found slowing of the pulse in the third stage. After labor, slowness or irregularity is found in all the cases in which it was present during labor. The puerperal pulse may be predicted from the condition found before delivery. Neumann believes, therefore, that puerperal bradycardia originates in the disturbance due to labor, whereby the inhibitory fibres of the heart are affected through stimulation of the vagus centre.

Pregnancy and Girlhood.

Spitta (*Inaugural Dissertation*, Marburg, 1895) reviewed the clinical history of 260 labors in primiparæ of eighteen years and under occurring at the Marburg

Maternity. The general health during pregnancy was not worse than the average among pregnant women. Delivery before the fortieth week was relatively frequent. The pains were often weak and the labor lingering. In many cases of deficient capacity of the pelvis among these the defect was due to the fact that they were not full grown. The most frequent evil in relation to labor in early girlhood is laceration of the soft parts. Vertex presentations were relatively frequent. Flooding during labor was common. The mortality of the child during parturition and for the first two weeks was not high. The proportion of male births increases with the age of the mother. Forceps is often required. Affections of the mammæ are common. Mortality is by no means high. A history of menstruation coming on early is favorable in a case of pregnancy in a young subject.

THE EXCRETION OF MAGNESIUM, CALCIUM, PHOSPHORIC ACID, AND NITROGEN IN PUERPERAL OSTEOMALACIA.

NEUMANN (*Archiv für Gynäkologie*, Band LI, Heft 1) has contributed a study of the excretion of magnesium, calcium, phosphoric acid, and nitrogen in puerperal osteomalacia, and the changes which are produced by castration and other therapeutic measures.

He calculated the amount of magnesium, calcium, phosphoric acid, and nitrogen in the food taken by three patients and the amount present in the feces and urine. These investigations are divided into groups, before and after the establishment of therapeutic measures, and before and after castration or the complete removal of the pregnant uterus. As a result the following conclusions were drawn:

(1) The excretion of calcium in the urine is greatest in the beginning of the disease when the bones are yet rich in calcium salts; as the disease progresses the excretion diminishes.

(2) The calcium excretion differs in the various stages and with the severity of the disease.

(3) After the removal of the ovaries or of the uterus, the calcium, magnesium, and phosphoric-acid excretion again become normal in mild cases, while in severe cases neither operation exerts any influence upon the further progress of the disease.

(4) The osteomalacia is not simply a bone-disease, but the disease process extends upon and involves all tissue changes.

(5) The removal of the ovaries or the uterus is only of benefit in mild cases and in the beginning of the disease. This operation should therefore be performed early, as soon as other therapeutic agents have failed to relieve.

CAUSES AND TREATMENT OF ABORTION AND HABITUAL PREMATURE LABOR.

RÖMHELD (*Centralblatt für Gynäkologie*, 1895, No. 39) has analyzed 235 cases of abortion and premature labor, more especially with reference to the causes of these conditions, and has deduced the following:

Syphilis is the most important cause and accounts for 27 per cent. of the cases; retroflexion of the uterus is accountable for 18 per cent.; chronic metritis and endometritis, 10 to 15 per cent.; uterine fibroids, 4.7 per cent.; abnormal conditions of the placenta, 4 per cent.; anteflexion of the uterus, 3.5 to 6 per cent.; molar pregnancy, 1 per cent.; Bright's disease and lateral deviations of the uterus, .5 per cent. There are also certain predisposing causes, especially constipation and chlorosis. Heredity did not appear to have much influence. The treatment is essentially prophylactic.

Pregnancy and Small-Pox.

Van der Willigen (*Nederlandische Tijdschrift voor Geneeskunde*, No. 11, 1895) made a study of eighty women who were suffering from small-pox and also pregnant. Of these 15 per cent. died, whilst the mortality of 352 non-pregnant women, who had the disease, was 11.08 per cent. Van der Willigen notes that pregnancy increases the predisposition of the patient to the graver forms of variola. In the eighty cases, confluent small-pox was seen in four and the hemorrhagic form in six cases, all of which died. In the 352 non-pregnant cases the confluent form was seen in three and the hemorrhagic in eleven patients; two of the confluent cases recovered. Two pregnant women died of milder forms. Of the total deaths in pregnant women (twelve) five died undelivered, and most of the others very shortly after birth without any trace of puerperal infection. Of the primiparæ 9 per cent. died, and of the multiparæ 17.25 per cent. 6.25 per cent. of women attacked by small-pox early in pregnancy died, whilst the mortality of those who were infected later amounted to 20.83 per cent.

Abortion or premature delivery was noted in twenty-three of the eighty cases during the course of the attack of small-pox. In six the same took place after convalescence from the disease. Sixteen children were born alive in cases where the small-pox was still in progress, eight at term and eight prematurely. Only three lived longer than six months. Several died of variola. Two were clearly born with it.

Care of Pregnant Women.

Pinard (*Gazette des Hôpitaux*, November 28, 1895) calls attention to the fact that it is very important that women should be kept at rest towards the end of pregnancy. Hard work is an evil both for the mother and for the child. He has made a comparison of cases of women who sought relief at the Lying-in Hospital, usually after the first pains have occurred, and those of women carefully nursed in a refuge for the pregnant. The average weight of the Lying-in Hospital children was 3010 grammes. That of the children born after the mothers had been at least ten days in a refuge was 3290 grammes. A maximum average of 3366 grammes was reached in cases where the mothers had resided for some time in the wards of the Baudelocque Lying-in Hospital. Pinard remarks, however, that there were more primiparæ in the refuge, and more multiparæ in relatively better circumstances in the hospital. Preliminary rest was found to have a particularly good influence on the duration of labor. Out of 1000 women who worked till labor began, 482 only were delivered on the two hundred and eightieth day of gestation. On the other hand, 660 of the women who had rested were delivered at or after the same date.

Albuminuria in Pregnancy, Labor, and Childbed, and its Relation to Eclampsia.

Saft (*Archiv für Gynäkologie*, Band LI, No. 7), after observing a large number of cases, has concluded that albuminuria occurs during the latter half of gestation, in 5.41 per cent. of all cases, with greater frequency towards the end of pregnancy and oftener in primiparæ than in multiparæ. During labor it is also more common in the former than in the latter. It disappears, as a rule, within a few days after delivery, but is more likely to persist in primiparæ, in whom the effects of gestation upon the kidneys are altogether much more serious than in multiparæ. White and

red corpuscles in non-albuminous urine of pregnant women come from the bladder, but neither during pregnancy nor labor are tube-casts found without albumin, though their presence does not seem to depend on the degree of albuminuria nor to influence its duration. Twins, hydramnion, and contraction of the pelvis are predisposing factors, but only during labor in multiparæ. Premature labor is a frequent result. A kidney affection exists which is due solely to the condition of pregnancy, the pathological changes in which are simply degenerative. This differs from nephritis. When uncomplicated, it is of favorable prognosis and not apt to terminate in chronic inflammation, but if accompanied by nephritis or heart-disease is of very doubtful termination. This condition is caused probably by an auto-intoxication of the system by some product of tissues-changes, as is the origin of the molimina graviditatis and of the nervous disturbances of the pregnant state during labor.

GYNECOLOGY.

UNDER THE CHARGE OF

CHARLES BINGHAM PENROSE, M.D.,

ASSISTED BY

H. D. BEYEA, M.D.

Kraurosis Vulvæ.

Peter (*Monattschrift für Geburtshülfe und Gynäkologie*, Band III, Heft 4, 1896) reviews the literature on kraurosis vulvæ, reports a case, and more completely investigates its pathological anatomy. He writes that Breisky, in 1885, first described twelve cases of this peculiar disease, and gave it the name kraurosis. Breisky observed an atrophic contraction of the skin of the vestibule, labia minora with frenum and prepuce of the clitoris, the inner surface of the labia majora and border of the perineum. Often, however, only part (one side or posteriorly) of these structures was involved. The skin of the vulva appeared stretched and the normal folds were obliterated; the kraurotic tissue was small and glistening, and a dull-gray color with the surrounding tissue reddish-brown. In all cases the disease developed slowly and unobserved, and itching was a symptom in only four of the cases. The symptoms of which the patients complained were mostly due to the vestibule stenosis. They presented themselves for treatment because cohabitation had become impossible, or because of tears and painful fissures. Since this first paper cases have been reported by Fleischmann (eight), Janowski (six), Heitzmann, Ohmann-Dumesnil, Hallowel, and Bartels. The cases described by these authors in no way differed from those of Breisky until Orthmann reported eight cases (1894) seen in Martin's clinic. These patients complained of burning and vulvar tenesmus, but it was impossible to determine whether this was the result of itching or pain caused by an inflammatory process. The pain was constant and much increased during micturition and defecation.

The disease has been seen at every age after puberty, in nulliparæ as well as multiparæ, and its etiology cannot be concluded either from the history or observation of the progress of disease. Orthmann found a small round-cell infiltration of the corium, most marked in the deeper portion, extending to the subcutaneous tis-

sue, with a high grade of atrophic change in all parts of the skin. The involution process was particularly seen in the corium, which was sclerotic. The epidermis, glands, hair-follicles, and blood-vessels were much smaller than is normal. The nerve tissue was unchanged.

The symptoms of which the writer's patient complained differ in no way from those described. Microscopical sections were prepared by hardening in alcohol, sublimate, and Flemming's solutions, and by Benda's method, and accordingly stained. From this investigation, which was most complete, the results of each method being described, he concludes that kraurosis vulvæ in its early stage is a chronic inflammatory hyperplasia of the connective tissue with a disposition to cicatricial contraction, inflammatory edema of the superficial corium and epidermis, with degeneration of the elastic tissue. As a result of this chronic inflammation and new growth the other elements of the skin are secondarily affected, and because of the degeneration of the elastic tissue the tears and fissures result. He agrees with Orthmann that the nerve tissue is not involved, but says that it must have been affected in those cases, complaining of pain. He believes that kraurosis should be classified with the other diffuse, connective-tissue hypertrophies of the skin, to which group, according to Kaposi, scleroderma and elephantiasis arabum belong.

All cases reported have been relieved or cured through dilatation, medicinal applications, ointments, and sitz-baths.

As regards the Bacteria contained in the Female Genital Canal and their Relation to Endometritis.

Gottschalk and Immerwahr (*Archiv für Gynäkologie*, Band L, Heft 3) have, during the last two years in the Gottschalk Gynecological Dispensary, made bacteriological examinations in sixty cases of corporeal endometritis. The method of bacteriological study is described. In twenty-one cases the secretion from the uterine cavity was free from bacteria. In two-thirds of these cases the secretion was sterile for many months. In seven cases bacteria were found during the treatment, but they were not pathogenic, and only a few colonies were seen upon the plates. The greater number of these were fungoid endometritis. In seven other cases, 11 per cent. primarily, at the first examination, staphylococci were found. Two of these, they conclude, were a particular form of purulent endometritis; since the organism was the staphylococcus pyogenes albus, the pus clinically had a bad odor, and the secretion was now and then bloody,—the symptoms thereby having a great similarity to those of gonorrhea. In four of the cases the staphylococci were found secondarily, immediately after an acute gonorrheal endometritis. In the remaining twenty-eight cases, which were a chronic catarrhal form of disease, therefore the greater number, the micro-organisms found were not pathogenic; they are known as skin fungi, since they are found on the skin of the perineum, pubic hairs, and in the vulva. Their inflammatory action is explained through their chemotoxic influence upon the circulation. If, therefore, diplococci, short bacilli, sarcini, and saccharomyces are not found as the primary cause of the inflammation, they can secondarily cause extensive inflammation of the mucous membrane. Contrary to the investigations of others, the writers found that the bacteria disappeared during menstruation. They, however, explain that this was probably the result of the washing and disinfectant vaginal douching, which is their routine treatment during the menstrual period. In two cases of endometritis exfoliata, and two of endometritis hemorrhagica, occurring as a result of influenza, a bacteriological examination gave negative results.

As Regards the Antibacterial Action of Ointments, with Particular Reference to the Influence of Constituents upon the Degree of Disinfection.

Breslauer (*Zeitschrift für Hygiene und Infectionskrankheiten*, Band xx, Heft 2) refers to the work of the Neisser school upon this subject, and the fact, determined by Koch, that carbolic acid in oil is worthless. He says that carbolized oil is now rarely used in obstetrics or by the practising physician. He believes, however, that a combined ointment and disinfectant is often wished for, and has, therefore, in order to determine the best, carried out a series of investigations upon animals and living skin with ointments containing 5 per cent. of carbolic acid, bichloride of mercury 1 : 1000, 5 per cent. of resorcin, 10 per cent. of boric acid, 5 per cent. of salicylic acid, 1 per cent. of nitrate of silver, and 3 per cent. of chrysarobin. The disinfectant was rubbed into the constituent. The constituents used for investigation to determine their relative advantages were vaseline, oil, fat, resorbin, lanolin anhydride, lanolin, ung. leniens, ung. zinc., ung. precipitat. alb., and ung. ciner. Ung. ciner. was found to be a strong disinfectant, also ung. precipitat. alb. Ung. zinc. was worthless. Others investigated, but less employed fats, which are used in combination with the above disinfectants, were œsypus, adeps lanæ epidermis, and ung. glycerini. Of all ung. leniens or lanolin was by far the best. He believes that in order to gain the best antibacterial effect the selection of a constituent is of the highest importance. The disinfectant acts best when combined with a constituent which contains water. He concludes that a 1 : 1000 sublimate lanolin is the most effective disinfectant ointment.

The Worth and Technique of Curettement as a Method of Diagnosis.

Gessner (*Centralblatt für Gynäkologie*, No. 18, 1896), at a meeting of the Berlin Obstetrical and Gynecological Society, on March 13, 1896, read a paper comparing the advantages and worth of curettement, and the microscopical examination of tissue removed over digital palpation of the uterine cavity in malignant diseases. He says that, although microscopical diagnosis in gynecological diseases has been known for the last twenty years, the method has not as yet received general acknowledgment. Particularly in England has this method been almost condemned. Truly, also in Germany that it has not yet received deserved acknowledgment. The only other method of diagnosis of malignant diseases of the corpus uteri, which can be considered to compare with this, is the digital palpation of the uterine cavity. He believes there are three factors which a method of diagnosis of these diseases of the corpus uteri must have, as follows : it must be without danger, easily applied, and, most important, it must be positive. In order to digitally palpate the uterine cavity, the cervical canal must be dilated. This is always, whether rapid or gradual, dangerous for the patient. Recently, cases have been reported where death resulted from this procedure. As compared with this, curettement is less dangerous if infection and perforation be isolated. In the cases to be referred to by the writer there was a rise of temperature only four times, and the uterus was never perforated. For dilatation and digital palpation, except where rapid dilatation is practised, two sittings and frequently two anesthesias are necessary, while in curettement only one sitting is required. In various complications, senile vaginæ, long or constricted cervical canal, ridged pelvic floor, an enlarged myomatous uterus, etc., digital palpation is difficult or impossible, and thus no positive results can be gained. It is also not true that the surface of the endometrium always be

comes roughened or nodular, for instance, in carcinoma. This occurs only when the disease is far advanced. Not rarely carcinoma causes soft polypi, which digitally cannot be differentiated from benign polypi. On the other hand, endometritic processes can result in hard growths. As illustrations of this the writer referred to suppurating myomata, saying such cases have been demonstrated. Another similar example is where a benign mucous polyp has been diagnosed as malignant by digital palpation. In the cases in which the digital palpation gives a positive result, a careful curettement in which considerable tissue is removed would also afford a positive diagnosis through microscopical examination. This is also possible in cases in which digital palpation would never have led to any result because the disease was too much localized. Such extirpated uteri have been demonstrated. In the Berlin University Clinic for Women, since January 1, 1890, the diagnosis of malignant disease of the corpus uteri has been made and the uterus removed fifty-eight times. In eleven of these a carcinomatous, and three a sarcomatous new growth was directly palpated. In three excised polypi sarcoma was diagnosed through microscopical examination. In the remaining forty-one cases the diagnosis was made by curettement and microscopical examination alone. During five years in this clinic it has never been necessary to employ digital palpation as a means of diagnosis in malignant disease of the endometrium. Gessner then demonstrated and referred to a few especially interesting cases. In four cases the carcinoma, although giving the symptoms, were not situated in the corpus uteri, but in the cervix. He therefore believes that the curettement is useful as a method of making an early diagnosis of carcinoma of the cervix. In another case from the changes occurring in the endometrium malignant disease of the ovary was diagnosed. He advises that the curettement be done under anesthesia, and the cervical canal be slightly dilated. That the entire uterine cavity should be systematically curetted and all of the removed tissue washed and examined. The tissue he believes is best hardened in alcohol, placed in an incision made in liver tissue and cut with a razor. In this way sections are made from all portions of the tissue without much difficulty. They are then stained with alum-carmine. By this method the best results are gained. He concludes that the described method of curettement is not only less dangerous than digital palpation, but is quite as easily applied, and gives more positive results where the malignant disease is localized. At the next meeting of the same society this paper was thoroughly discussed, and most favorably criticised by Veit, Nagel, Flaischlen, Winter, Kiefer, Bröse, and Dührssen.

BOOK NOTICES.

A Treatise on Appendicitis. By John B. Deaver, M.D. Philadelphia: P. Blakiston, Son & Co., 1896.

The recent literature on the subject of which this book treats is voluminous. The observations now number thousands. Many points, however, still remain in dispute. This is due in part to the circumstance that cases are not carefully observed and reported, and also because individual theories and opinions are masqueraded so constantly as facts.

The author states that the observations contained in his book are the result of an experience in the treatment of "over 500 cases." A work intended to record an advance in any department of medicine should be either a most accurate record of a considerable number of cases coming under the author's observation, or a careful sifting of the evidence at the time before the profession. In the present instance both of these are wanting. But few of the "500 cases" are described, and these in a manner so brief and unsatisfactory as to be useless for the purpose of detailed study. Only the rarest reference is made to the views of the many writers who have added greatly to our knowledge on appendicitis and the great mass of evidence on the side of the question opposed to that taken by the author is entirely ignored. On the other hand very free use with equally limited acknowledgment has been made of the work of Fowler, Talamon, Hawkins, McBurney, and others.

Although his experience "has forced him to the conclusion that there is but one course to pursue in order to obtain the best possible results,—namely, to remove the appendix as soon as a diagnosis has been made," the writer apparently does not trust himself to describe the appearance of the normal appendix, which he states on the authority of Holden to be of the diameter of a goose-quill, or about the same as that of a large earthworm. It has not been our privilege to see either goose-quills or earthworms as large in diameter as the vermiform appendix.

One would suppose that in a treatise based on "an experience in the treatment of over 500 cases" of a disease, to quote again from the preface, "capable of such varied symptoms and of so many serious complications, all of which demand the most thorough knowledge for their proper treatment" that some additional information on these subjects would be forthcoming. In this we are disappointed.

Although the author says "he is positive that acute indigestion plays a very important *rôle* in the etiology of appendicitis," no figures are given to indicate the proportion of his "500 cases" in which this appeared to be the cause of the disease. Nothing is said about trau-

matism as a possible cause. No figures are given to indicate the relative proportion of cases in which constipation or diarrhea was noted. In short, we search in vain for any new facts furnished by his study or observation.

His statement that recovery from appendicitis is rare, and his conclusion that "early," "immediate," or "prompt" operation is the only treatment, rest therefore on no original discoveries, but are simply the oft repeated reiteration with which the profession has been familiar for some years.

The majority of practitioners, however, hold a less radical opinion, and, we believe, a sounder one. Hawkins ("Diseases of the Vermiform Appendix," 1895) reports 190 consecutive cases having the distinct clinical characters localized in the right iliac fossa, and described by all writers as symptomatic of appendicitis; all made a good recovery. He says, "the total amount of surgery employed to bring about these 190 recoveries is comprised in one successful removal of the appendix during an attack of perityphlitis."

The clinical features of the disease are not presented with the accuracy and precision that its importance deserves. The fact remains, in spite of all that has been said, that the diagnosis in many cases of inflammatory affections of the abdominal cavity is very obscure, and in our opinion it is a demonstrably unsafe practice to make the diagnosis of appendicitis without exception on pain, tenderness, and rigidity of the lower right segment of the abdomen.

Hawkins says, "owing to the lack of post-mortem opportunities there is not in existence any clear and systematic account either of the changes in the appendix or of the modes in which peritonitis arises therefrom."

It certainly should have been possible, "after a close observation of over 500 operative cases," to come to some conclusions in regard to these early changes in the appendix, particularly as an analysis of fifty consecutive cases, said to be taken from the author's case-book, shows that five were operated on within twenty-four hours, eighteen within forty-eight hours, and twelve within seventy-two hours of the beginning of the attack. If the same proportion of early operations obtained in the "500 operative cases," there must have been in the neighborhood of 350 operations within seventy-two hours of the onset of the attack, surely enough, if carefully observed, to have based some generalizations upon.

The theoretical deductions as to the mortality after early operation, the necessity for operation in every case, etc., might apply, to quote again from Hawkins, "in an ideal world peopled by perfect patients and perfect physicians and surgeons." This condition is manifestly a theoretical one. We have all had experience with patients who have treated themselves for a number of days and who walk into a hospital one or two weeks after the onset of the disease, with a large mass in the right iliac fossa and in some cases with an abscess already formed.

We must treat the disease as we find it. It is not possible to dogmatize so absolutely as the author would have the reader suppose. The safest surgeon always has been and always will be the one who

approaches his case with a judicial mind, examines his patient carefully, giving due attention to each symptom, subjective and objective, and proceeds according to the evidence thus obtained. He who cannot do this is not competent to operate, certainly not to decide when operation is or is not required, though he may be able to remove the average appendix with celerity, such removal being one of the easiest of all intra-abdominal operations.

The late lamented Dr. William Goodell was fond of saying to his classes, "gentlemen, there are no hard and fast rules in medicine." This is as true to-day as ever. There are cases of appendicitis that require operation and there are cases that do not require it.

There are cases of appendicitis in which the diagnosis is so easy that error is almost impossible, but that very fact should cause a careful and conscientious surgeon who undertakes to teach his fellow-practitioners, to dwell with emphasis on the doubtful and obscure cases even if they are in the minority.

Talk about diagnosing appendicitis "by telephone" would be absurd and laughable if it did not unfortunately often lead to grievous error. Surgeons who have gone on duty in hospitals where what may be called the "appendicitis craze" has been fostered by their predecessors can testify to the frequency with which cases without a rational symptom of appendix disease are sent in for operation. It is distinctly to the discredit of surgery that such slip-shod diagnosis and unworthy eagerness to operate should prevail, but it is certain that the sound common sense of the profession will be competent to deal with this subject as it has with other extravagances in times past. In the mean while we need careful records of clinical and pathological facts, not compilations, or mere reiterations of the danger and frequency of the disease, the ease of diagnosis, and the still greater ease with which, by "skilled hands," the appendix can be whipped out of the abdomen.

An American Text-Book of Obstetrics for Practitioners and Students. Richard C. Norris, M.D., Editor; Robert L. Dickinson, M.D., Art Editor. Philadelphia: W. B. Saunders, 1895.

This book very properly begins with chapters on the anatomy of the pelvis, the anatomy and physiology of the female generative organs, and the physiology of pregnancy, all of which have been contributed by Dr. George A. Piersol. These subjects are very comprehensively considered, and are illustrated by numerous well-selected engravings.

The diagnosis of pregnancy and its hygiene and management are well set forth by Dr. Chauncey D. Palmer. The symptoms of pregnancy are fully presented. In speaking of "morning sickness," however, nothing is said of those rare but not less pronounced cases in which the "sickness" may be more prominent in the middle of the day, or even towards evening. They are, of course, exceptional, and therefore of interest.

The various affections included under the pathology of pregnancy are discussed by Drs. Davis, Etheridge, Kelly, Earle, and Mergler, and are faithfully described from a modern stand-point.

The physiology of labor has been contributed by Dr. Dickinson, and the conduct of normal labor by Dr. Jewett. The most rigid asepsis is urged both as regards the patient and the obstetrician, nurse, etc. In private practice, however, the author does not recommend the preliminary vaginal douche, except in cases in which the vaginal secretions are pathological. This may readily be determined by testing with litmus paper. In health the reaction is strongly acid, while in pathological states it is feebly acid, neutral, or even alkaline. The obstetrical examination,—the diagnosis of the position of the fetus by abdominal palpation and the determination of the dimensions of the pelvis, now considered so important, are fully considered. The mechanism of labor has been comprehensively presented by Dr. Reynolds. It represents a practical treatise devoid of technicalities that tend more to confuse than to instruct the student and practitioner. Dystocia, excepting those forms due to accident or disease, is very fully considered by Dr. Hirst. The numerous forms of deformed pelves and the other impediments to natural labor are detailed and figured, and the means of their detection and the most approved methods of treatment are described. An excellent chapter on puerperal infection has been contributed by Dr. Garrigues. The consideration of the other diseases of the sexual and non-sexual organs is from the pen of the editor, Dr. Norris. The discussion of the diseases of the nipples and breasts is particularly complete.

Dr. Etheridge describes the physiology of the new-born infant, and the pathology is contributed by Dr. Earle.

The various obstetric surgical procedures have been well described by Dr. Cameron, while the different forms of version are detailed by Dr. Dickinson. The work closes with an excellent *résumé* on celiotomy for sepsis in the childbearing period by Dr. Hirst.

This work will take a place among the standard text-books of medicine. As a reliable guide to modern obstetrics it is one of the best. No important omissions have been observed, and yet the different contributions do not overlap, both of which are constant dangers in books of composite authorship.

In the wealth and excellence of its illustrations this work stands alone. Much credit is due both the editors and the publisher for this valuable feature.

The Standard Dictionary of the English Language. New York: The Funk and Wagnalls Company.

It has been the effort of the publishers of this work to exceed in scope and utility that of any previous dictionary. It has been compiled at an expense of nearly a million dollars, and nearly five years were consumed in its preparation.

The result is a work which contains upward of 301,000 terms in addition to more than 47,000 references contained in an appendix.

A number of valuable features have been introduced. Initial capitals are employed in the spelling of proper names or proper terms derived from them. The syllabication is simple and readily distinguishable from compound words which are indicated by the double German hyphen. In the matter of spelling, a tendency toward the simpler forms is shown, as in all words fully anglicized the single vowel has been made to replace the usual diphthong. For pronunciation each word is respelled with the scientific alphabet which insures the greatest simplicity and accuracy.

The feature which will prove most convenient to the majority of persons is the arrangement of the definitions. It has been the custom in previous dictionaries to interpose etymology, obsolete forms, etc., between the words and the definitions, whereas in the "Standard" the definition immediately follows the vocabulary term. When there are two or more meanings of a word the most common is given first. Particular attention has been given to the compounding of words, to synonyms, antonyms, and to rhetoric. The correct use of prepositions after certain words, which is often a matter of perplexity, is here given.

An appendix of upward of 47,000 proper names in biography, history, mythology, fiction, the Bible, the classics, etc., are given, all in one alphabetical order.

The dictionary has been brought right up to date. It contains the terms used in medicine as well as in all the other sciences. It seems impossible to suggest a valuable feature for a dictionary that this one does not possess. It is published in two volumes.

ANNUAL OF THE UNIVERSAL MEDICAL SCIENCES. Edited by CHARLES E. SAJOUS, M.D., and seventy associate editors. Philadelphia: The F. A. Davis Company, 1895.

The eighth issue of the Annual fully maintains the standard of the previous issues. A description of the scope of the "Annual" seems superfluous, as the work has been so widely and favorably known for several years. But few changes in the editorial staff are noted. Works of this kind have become a necessity as is shown by the multiplication in their numbers. One can now select from several reviews of the year's progress a suitable abstract of medicine, and the allied sciences. Dr. Sajous's work is the largest and most complete of all of these. The abstracts in the main are excellent. Many are exhaustive, all are under the supervision of well-known authorities. Occasionally a subject is given more space than its importance deserves, and we sometimes note a tendency to refer the reader to articles upon which no comment whatever is made, so that without referring to the article the reader can have no idea whether the article contains the information he is seeking or not.

The "Annual" is useful not only to writers on medical topics, but also to the general practitioner, as the new methods of treatment are described, as well as the many new therapeutic agents that are so rapidly finding their way into practical medicine at the present time.

THE ARCHIVES OF CLINICAL SKIAGRAPHY. London: The Rebman Publishing Company, Limited.

The object of this new publication is to put on record in permanent form some of the most striking applications of the new skiagraphy to the needs of medicine and surgery.

The first part of Vol. I, which has recently been issued, contains an introduction to the subject of skiagraphy and six plates illustrating various conditions.

The use of the Röntgen ray is being extended more and more, in not only surgical but also in medical diagnosis, and a work devoted to this subject cannot fail to be of interest to the profession. The work is to be issued monthly, and each number will contain six prints representing interesting clinical cases.

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SUDDEN ACUTE ABDOMINAL PAIN: ITS SIGNIFICANCE.

By Byron Robinson, B.S., M.D.,
Chicago,
Professor of Gynecology in Post-Graduate School.

Abdominal surgery is no longer a pioneer work. It is the result of the accumulated experience of the past fifty years. Its success is based on well-tried processes. It is a jealous field, filled with battles lost and won, dotted here and there with sad regrets, chagrin from unavoidable mistakes, but often brightened by the light of success. A master-hand in abdominal surgery is a hard-earned reputation. However, the accumulative experience of fifty years has still left obscure points in abdominal surgery which the genius of Lawson Tait attempted to set at rest by the exploratory and confirmatory incision.

During the past ten years I have been particularly interested in gynecology and abdominal surgery, and all along these years has risen the question of abdominal pain and its signification. To interpret abdominal pain requires the best skill of the finest heads.

Location.—How far can we diagnose abdominal pain by its locality? Only to a limited degree. Associated circumstances must aid in the diagnosis. There are three common localities of acute abdominal pain, or peritonitis,—viz., pelvic, ceco-appendicular and that of the gall-bladder region, and as probability is the rule of life, it is well to diagnose acute abdominal pain as a disturbance in one of these three localities of the peritoneum.

Acute abdominal pain in general is referred to the navel,—in other words, to the region immediately over the solar plexus or abdominal

brain. Acute abdominal pain is due to a disturbance of the peritoneum, owing to a lesion of an adjacent viscus; but since the peritoneal pain can arise from many organs and from several points of the same organ, it demands the most experienced diagnostic acumen and the most mature judgment to interpret the significance of the trouble. No one can decide what kind of wood lies under a table-cloth. I have repeatedly observed in appendicitis that patients say the acute pain, especially in the beginning, is over the whole middle of the abdomen (solar plexus). This may be due to excessive and violent peristalsis of the small intestines. As regards locating the pain at any point of the small intestines, it cannot be done, first, because the loops of intestine have no distinct order as to locality; second, the patient cannot discriminate a point of pain at any given point,—perhaps from lack of practical experience. With few exceptions to locate the seat of trouble in acute abdominal pain, we call to our aid the pain elicited by pressure. Pressing the abdominal walls produces a distinct localized tenderness or pain which suggests localized pathology. Again, rigidity or tension of the abdominal wall is suggestive of a pathologic locality. This symptom is purely reflex, due to irritation passing from the involved viscera to the spinal cord, whence its irritation is transmitted to the periphery of the lower intercostal nerves which control the abdominal muscles over the seat of pain. Dashing cold water on the belly will produce similar protective muscular rigidity. Hence, in general, the location of disease in the abdomen from the patient's feeling of sudden acute pain is quite indefinite. But local tenderness and local pain on pressure aid very much. Localized rigidity of the abdominal wall is suggestive that such tension is protecting the seat of disease from motion, further bacterial or fecal invasion. In short, the rigid muscles are putting the pathologic parts to rest.

Vomiting is a general characteristic of sudden acute abdominal pain. In sudden acute abdominal pain, from visceral lesion, Nature makes profound effort to manifest its distress, but to diagnose the seat of pathology and nature from the localization of the pain requires much reading between the lines from experience and judgment.

Again, a vast difference arises between sudden acute abdominal pain and the abdominal pain which comes on slowly. Much depends on the stage of the disease in which the physician first visits the patient.

The signification of sudden acute abdominal pain may be realized better by a short consideration of some of the principal conditions which occasion it.

The first class of sudden acute abdominal pain chiefly arises from the digestive tract. The second class arises from the genito-urinary.

(1) In the category of the digestive tract, producing sudden acute abdominal pain, we place *interstitial obstruction* from (*a*) strangulation by bands and through apertures; (*b*) invagination; (*c*) volvulus, and (*d*) perforation. The mode of onset in all of these is sudden and violent and nearly always accompanied by vomiting.

Strangulation by bands and through apertures constitutes one-third of all interstitial obstructions. If the bowel loops slip through an inguinal or femoral aperture, digital examination will detect the cause of the sudden, acute abdominal pain. Obturator and sacrosciatic hernia are seldom diagnosed, so that practically they would come under internal strangulation by peritoneal bands. Sex does not aid in diagnosis, for males and females about even up in peritonitis during life, and hence will possess about the same amount of peritonitic bands to strangulate bowel loops.

A history of previous peritonitis tells the story of strangulation by bands. Vomiting is violent, pain from peristalsis is periodic and general over the abdomen. The pain is not due to stoppage of the fecal current, but to reflex irritation of the bowel at the seat of obstruction. Temperature is not conspicuous and the pulse is not much changed. Tympanitis arises in exact proportion to the peristalsis of the bowel wall above the seat of obstruction. At first the pain is violent, but it subsides with the progress of the case, becoming more continuous and generally diffused. If the patient be quiet, the pain is so slight that it deceives the most elect. No stool, no gas per rectum, no detectable swelling at any hernial aperture with continuous abdominal pain and vomiting demand surgical notice. The temperature and pulse are not reliable. Strangulation by bands will generally give no tender location on pressure and no detectable swelling, and, in fact, I have watched cases with the abdomen quite soft and pliable with no possible physical point of diagnostic value, not even tympanitis. In one case the pain was at first severe, general, and almost subsided the day before the operation, yet fifteen feet of gut was as red as a sunset. The sudden, acute abdominal pain is not due to the constricting band, but to reflex irritation transmitted to the abdominal brain where reorganization occurs, whence it is emitted to the whole digestive tract, inducing violent, disordered, and wild peristalsis (colic).

Acute, sudden, abdominal pain, due to a constricting peritoneal band is one of the most obscure matters to interpret. To explore the abdomen in the proper time for such cause requires a wise diagnostician and a bold surgeon. The matters to bear in mind in stran-

gulation by bands are the acute, sudden abdominal pain with a violent onset, vomiting, and the distinct colicky, peristaltic, periodic character of the suffering, not forgetting a previous history of peritonitis. However, the sudden, acute abdominal pain arising from strangulation of a loop of bowel by peritonitic bands is difficult to interpret and seldom diagnosed. It may be asserted that when a patient is suffering from some grave disease, manifest only by sudden acute abdominal pain, the nature of which cannot be interpreted, an early exploratory laparotomy is justifiable and demanded. Such obscure cases require an experienced and skilled surgeon in abdominal work to meet any emergency. I remember very distinctly the case of a man about forty who gave consent to my colleague, a general practitioner, who was entirely untrained by experience or observation in abdominal surgery. The doctor told me he opened the abdomen and found a band stretching tightly across the ascending colon. But he said "the colon was black, and I did not know what to do with it, so I closed the abdomen." It is needless to say that the man made a prompt, fatal exit. But most cases die undiagnosed. The danger of strangulation by bands is gangrene and perforation.

Invagination constitutes about one-third of all interstitial obstructions, and the sudden acute abdominal pain arising from this cause is more easily interpreted. Age signifies much in this case, for one-fourth of all invagination occurs before the end of the first year of life, and one-half before the end of ten years. Invagination is a disease of childhood. Its mode of onset is sudden and often violent. From some twenty-five experiments in invaginating the bowel of the dog, I am sure the pain is periodic at first. The griping, colicky, peristalsis is rhythmic, depending on irritation. At stated times the dog suddenly spreads wide his four feet and arches his back, appearing in severe distress, then gradually recovers his natural attitude. In invagination blood occurs in the stool in 80 per cent. of cases (especially children), and the vomiting is not violent nor even always conspicuous, for the bowel is only partially occluded. Seventy per cent. of invagination occurs at the ileo-cecal apparatus,—that landmark in man's clinical history,—15 per cent. in the small intestines, and 15 per cent. in the large bowel. Invagination manifests abdominal pain similar to a long enterolith in the bowel which in turning leaves small spaces at its side for the passage of gas and some liquid stool. I have, unfortunately, watched a case of enterolith day after day, not being able to interpret the abdominal pain or to diagnose the case until gangrene of the bowel occurred at the seat of the enterolith, when nature asserted sufficient manifestation to explore the abdomen, but with a fatal result. The most skilled of abdominal sur-

geons repeatedly examined this case, but could not interpret the acute abdominal pain which came on suddenly, though as the days glided on it quietly subsided. The patient was a physician, but could not localize any abdominal pain; it was diffuse. Temperature was about 99½° and 100° F., and the pulse was 85 to 95 almost the whole week of illness. The abdomen was generally soft and not tympanitic. Very seldom can an abdominal tumor be felt in the bowel invagination. Shock in young children is quite conspicuous, yet I personally know of two autopsies in infants who were attended in life by three of the most skilled by Chicago abdominal surgeons, yet in neither case was the diagnosis of invagination made, which the post-mortems revealed as the cause of death. A skilled and experienced physician, such as was the late Dr. Jaggard, took an eight months' infant and stripped off the clothing to be more thorough in examination, and yet, after all his diagnostic skill, failed to locate disease in the bowels. The child was very pale, cried a little, and died thirty hours after the attack. The autopsy revealed ileo-cecal invagination.

Sudden, acute abdominal pain in a child may with high probability be interpreted as invagination, especially if one can detect the periodic, peristaltic character, its colicky nature. Blood following in the stool is almost pathognomonic. A tumor will rarely be found, and pressure on it will not generally elicit tenderness. It is not at all likely that the patient can locate the seat of the disease from the pain. Tympanitis and vomiting are not conspicuous, and the temperature and pulse are unreliable. The danger of invagination is sloughing of the apex or neck and consequent perforation. Invagination presenting at the anus interprets easily the cause of the pain. Volvulus is so rare that it constitutes about one-fortieth of all interstitial obstructions, and occurs about four times as often in men as women. As in invagination so in volvulus, I was always compelled to suture them in position in a dog. But I never succeeded in establishing a permanent volvulus in the dog. Volvulus is characterized by tympanitis, and it is said by severe periodic pain. Volvulus occurs at the sigmoid in 60 per cent. of the cases; at the ileo-cecal valve in 30 per cent., and in the small intestines in 10 per cent. I have seen partial, but never complete, volvulus in man. Senn operated successfully on a man, on the eighth day, for sigmoid volvulus. The man had enormous tympanitis; his pain is not described as severe, but no doubt the suffering is severe.

At first the pain is periodic, but as time advances it becomes more constant, with now and then exacerbations. Vomiting, though not conspicuous, must arise more or less from trauma to the peritoneum. Perhaps the sudden pain, chronic constipation, and rapid

rise of tympanitis would aid in interpreting volvulus, but seldom can one diagnose such a disease, pain no doubt would be referred to the abdominal brain. Most clinicians note tympanitis as a conspicuous feature of volvulus.

In perforation it is very difficult to interpret the sudden abdominal pain. Associated circumstances would aid. In typhoid fever one would naturally suspect perforation if sudden acute abdominal pain arose, and my colleague, Dr. Van Hook, successfully operated on a typhoid perforation diagnosed by his medical friend. One might think if he was called to a young woman with sudden acute abdominal pain that it was a round, perforating ulcer of the stomach, after excluding pelvic and appendicular disease. But the sudden acute abdominal pain of perforation is so vague and indefinite that only an exploratory incision would interpret it.

The sudden acute abdominal pain from appendicitis (perforation) is more apt to be diagnosed. Now probability is the rule of life, and when one is called to a boy or man up to 35 with sudden acute abdominal pain, it is likely appendicitis. The pain of appendicitis is at first sudden and generally diffuse, and the sudden pain in appendicitis is, in my experience, a characteristic and conspicuous feature of it. The sudden acute pain in appendicitis is doubtless due to violent appendicular peristalsis (colic) or the rupture allowing the bowel contents to come in contact with the peritoneum, and also inducing violent irregular peristalsis of the adjacent bowel loops. Rigidity of the abdominal muscles over the seat of pathology in appendicitis is a great aid to interpreting the pain. The muscular rigidity is protective and due to the transmission of the visceral irritation to the spinal cord which is reflected to the abdominal muscles. There is a nice balance between the peripheral visceral nerves and the peripheral nerves in the abdominal muscles. Local tenderness and local rigidity of the abdominal muscles is a great aid in signification of the sudden acute pain in appendicitis. It might be well to suggest that the position of the appendix is extremely variable. In 350 autopsies I noted the appendix located all the way from the under surface of the liver to the floor of the pelvis, and also many times where there was more or less of a mesenterium commune, the cecum turned towards the vertebral column, and the appendix is then liable to lie among the small intestines,—the dangerous ground of peritonitis. It is likely that the pain in appendicitis depends on the seat of the disease,—*i.e.*, the mucous membrane has become ulcerated, inducing appendicular colic (peristalsis), while the sudden exacerbation of violent diffuse abdominal pain is due to the involving of the peritoneum itself. I see nothing especially worthy of attention in

the so-called McBurney point. Pain over the seat of pathology is certainly a natural feature, and generally the appendix lies under a point midway between the umbilicus and anterior superior spine of the ileum. But it is not always so by any means, for I examined with great and anxious care, a short time ago, a young physician with severe pain over the so-called McBurney point, when on operation the long appendix was down in the pelvis and perforated. It is a fair proposition to say that tenderness and pain on pressure is approximately over the seat of disease, so to speak of a so-called McBurney point is redundancy. Then, again, pain on pressure may be reflex, bobbing up in remote regions of the abdomen. The sudden, acute, diffuse abdominal pain arising in appendicitis generally subsides to the right iliac fossa after thirty-six hours, and one can nearly always elicit pain on pressure. This pain on pressure is doubtless the motion transmitted to a sensitive, inflamed peritoneum, and not the dragging on an adhesion, as some assert, for adhesions so newly formed can have no nerves formed in them. But man is subject to appendicitis four times as frequently as woman, due, perhaps, to Gerlach's valve being small in man, and thus not allowing the foreign body to escape after entrance, or due to the greater activity of the psoas muscle in man. The appendix lies on the psoas muscle in man more frequently than in woman, and on its longest range of activity, hence when the appendix contains virulent and pathogenic germs the long range of action of the psoas so traumatizes the appendix that it induces the escape or migration of the accidental virulent pathogenic microbes through the appendicular walls into the peritoneal wall or cavity. Common sense and experience would dictate that the pain on pressure would occur in any point of the abdomen possessing inflamed structures. Since probability is the rule of life, it is well to look to the three great regions of dangerous peritonitis,—viz., pelvic, appendicular, and gall-bladder region.

The digestive tract has still another common seat for sudden acute abdominal pain, and that is the gall-bladder region. The sudden acute abdominal pain in hepatic colic is not generally so violent as many others accompanying acute diseases of the digestive tract. Patients relate that the pain is aching, dragging, and in the active stage cutting or tearing. Some relate a feeling of tightness or fulness. But it depends on whether the stone is attempting to enter the mouth of the duct or whether it has already entered. I have had typical cases where operation proved that the stones only attempted to enter the duct. No doubt these are the cases which say so often that they have some severe pains at any time, but espe-

cially after taking hot meals, hot or stimulating drinks, whence arises excessive peristalsis inducing short, temporary hepatic colic. Now, when the gall-bladder has many small stones in it, and when one more or less often attempts to engage in the neck of the gall-bladder, the pain is rhythmical. It begins slowly and rises to a maximum. At the maximum the pain is intense. We have observed such cases and afterwards operated on them, removing many small stones. Gall-stones are perhaps four times as frequent in women as in men; why, we do not know. In my experience patients can generally localize the pain in gall-stones more accurately and definitely than almost any other sudden acute abdominal pain. They refer the pain to its proper locality: however, I must admit that this reference is before rupture. After rupture of bladder or duct the pain is indefinite, like other perforations. The sudden acute abdominal pain in gall-troubles is characterized by more slowness, less acute intensity, distinct periodicity than invagination, appendicitis, or perforation of the digestive tract. Jaundice is not necessary. Jaundice depends on the color of the eyeball, and not the skin. A feature in gall-bladder pain is that it extends well towards the dorsum. Age aids in diagnosing stone in the biliary passages to some extent.

In renal (genito-urinary) colic it must be said that the pain resembles that of the hepatic colic in many ways, in rhythm being paroxysmal. It intermits and is often agonizingly spasmodic. It requires much careful study to differentiate the sudden acute abdominal pain in hepatic and renal colic from each other. This is important, for the plan of action is very different. The pain in appendicitis, renal, and hepatic colic are in close relation.

The sudden acute abdominal pain arising from the genitals (genito-urinary) is more easily interpreted and managed. The pain can be more definitely located by the patient and sudden disorganization of viscera, being accessible in the pelvis is much more within control of the gynecologist. The sudden acute abdominal pain from the genitals is generally a ruptured ectopic pregnancy or the very rare matter of the rupture of a pyosalpinx into the peritoneal cavity. Most other pelvic pains are of slower origin and almost always diagnosable. Sex and the reproductive age aid in the interpretation of the case.

Remember the three dangerous peritonitic regions,—viz., pelvic, appendicular, and gall-bladder.

In regard to the character of sudden acute abdominal pain, it varies as to (*a*) its mode of attack, and (*b*) as to the viscera attacked.

If one will closely watch the sudden acute abdominal pain, it will be quite apparent that the character of the pain in most of the

acute affections of the abdomen is very similar. We only observe in reality a difference in degree of pain from the bearable to the agonizing. In perforation the character of the pain is the same in all viscera. In invagination it is paroxysmal and periodic, at least at first, due to irregular and violent peristalsis in internal strangulation; it is generally intense and periodic, due to violent peristalsis, later continuous and of an aching, dragging character, due to paralysis of bowel segments. In appendicitis the pain is nearly always sudden and intense,—*i.e.*, the perforative variety. The variety of appendicitis with slowly increasing pain is likely lymphatic in invasion and not dangerous, simply medical, of course the appendicular mucosa may be perforated. Sudden, acute abdominal pain of a lancinating character, and being quite continuous is very liable to be perforation of the appendix or digestive tube, and the continuous, agonizing character of the pain is a heraldic symptom of diffuse peritonitis, the knell of life. It may be remembered that the character of the sudden acute abdominal pain will depend on the capacity of any viscus for peristalsis,—*i.e.*, its capacity to cause colic by violent, wild, irregular muscular action. In peristalsis periodicity must not be lost sight of, and the etiology which gives rise to the irritation, inducing the peristalsis. It may be transitory in character, as food irritation, rapidly forming and reducing invagination or a stone attempting to enter a duct. Or the pain may be continuously periodic, as a stone lodged in some canal, appendix, ureter, small intestine, or biliary ducts.

In regard to the location of sudden acute abdominal pain we have to consider (*a*) the seat of pain as felt by the patient; (*b*) the pain elicited by pressure (tenderness); (*c*) local rigidity of the abdominal muscles; and (*d*) anesthetic or hyperesthetic condition of the skin of the abdomen.

In general, sudden acute abdominal pain is referred by the patient to the umbilical region, to the solar plexus, directly over the abdominal brain. This, in my opinion, is a nervous centre, possessing the power of reorganization, receiving and transmitting forces of controlling visceral circulation and of inducing reflex or referred pain. The irritation of peripheral visceral nerves is transmitted to the abdominal brain, whence reorganization may make the pain felt over the abdominal brain, at the seat of pathology or a remote abdominal point due to a very supersensitive nervous system.

As to local tenderness or pain elicited by pressure, it indicates a pathologic condition of the peritoneum (inflammatory). The pain is induced by motion or disturbance communicated to a sensitive inflamed peritoneum.

Local rigidity of abdominal muscles indicates adjacent underlying pathology of organs supplied by the same nerves as the muscles which exercise a protective agency to preserve rest for damaged tissue to assume repair and prevent further destruction from motion. Hyperesthesia or sensitiveness of the skin, due to transmitted irritation, is often present, but is not very reliable as to locality, for it is dependent on peculiar symptoms, and accompanies, more or less, though irregularly, most acute abdominal affections. Of course, it would be expected that the severe sudden acute pain in the kidney and gall-ducts, being very near to the abdominal brain, would be difficult to separate from the solar plexus. Lead colic may deceive the most elect as to its etiology or seat.

INCIPIENT UTERINE CARCINOMA.[1]

By W. A. Newman Dorland, M.D.,

Philadelphia,

Instructor in Gynecology, Philadelphia Polyclinic; Assistant Demonstrator of Obstetrics, University of Pennsylvania.

A striking instance that came to my notice only five days ago, of what I am inclined to designate as either a case of indefensible negligence or ignorance on the part of the medical attendant,—probably the latter,—impels me to bring to your consideration to-night a subject, than which none more important exists in gynecologic practice, or even in the entire domain of surgery itself. I refer to the recognition of incipient uterine carcinoma.

In November last there applied to me for relief a woman, 44 years of age, married twenty-six years, and the mother of seven children, two of them premature. She had enjoyed excellent health until within the past few months, when she commenced to suffer with uterine hemorrhages, not confined to the menstrual epochs, and steadily increasing in severity until they would last for three weeks at a time; in the intervals they were accompanied by a leucorrhea which was at times offensive. She was a devotee of homeopathy, but had come to me upon the recommendation of a friend whom I had confined a few months before. Suspecting malignant disease from the history presented, taken in association with the age of the patient, I instituted a vaginal examination and elicited the following points:

[1] Read before the Charles B. Penrose Gynecological Society of the University of Pennsylvania, April 16, 1896.

The perineum and cervix were lacerated, the os was patulous and much eroded, and the fundus uteri was anterior, although the organ was situated low in the pelvis. The patient informed me that she was steadily losing in flesh; that she was very much constipated, and that she suffered from severe pain in the ovarian regions and in the small of the back.

From the facts thus obtained I felt justified in telling the woman that her condition was a serious one, and advised radical treatment, with the very common result of scaring her off. I did not see her again until last Saturday evening, when she sent for me for relief from pain. She then informed me that since her previous visit to me she had been under the care of her family physician, who had told her that she was suffering from an inflammation of the ovary, and had treated her for that condition. I repeated my examination, found a well-marked carcinoma, confined, however, to uterine tissue, and again urged immediate extirpation of the diseased organ.

With this short summary of the facts of an interesting gynecologic case as a text, permit me to direct your attention for a few minutes to the methods at our disposal for recognizing this grave disease in the earliest stages,—at a time when prompt intervention at the hands of one experienced in pelvic surgery will offer the patient every chance of absolute recovery. In the first place, let me urge upon you the importance of training yourselves to be on the lookout for uterine carcinoma. The history of profuse hemorrhages at or shortly after the menopause should be as strongly suggestive to you of the possible existence of uterine carcinoma as is the history of menstrual suppression in a younger woman of the possible existence of gestation. I regret to say that the profession itself is largely responsible for fostering the idea so prevalent among the laity that the climacteric is characterized by profuse and irregular hemorrhages. No belief is more erroneous than this, nor does any lead to more disastrous conclusions. With this fallacious view strongly engrafted upon their minds, many women endure in silence hemorrhagic effusions that at another period of their lives would promptly demand active interference from their medical advisers, and thereby frequently permit the opportunity for absolute eradication of the disease. Hemorrhage at this period should be regarded as a most ominous sign of grave organic disease, and its cause investigated.

Neuman[1] has recently examined into the cause of post-climacteric hemorrhage from the genital tract in a series of 1000 cases collected in the Schauta clinic in Vienna. Of these cases, in more than

[1] Monatscheft für Geburtshülfe und Gynäkologie, Band 1, Heft 3, 95.

half (55 per cent.) was the hemorrhage due to cervical carcinoma; in the remainder of the cases the bleeding resulted from erosion, ulceration, mucous polypi, sarcomatous degeneration of myomata, and carcinoma of the body. Neuman believes that when chronic and severe metrorrhagia occurs in a woman who has passed the menopause, and she is failing in health and becoming anemic, a diagnosis of carcinoma of the corpus uteri can be made almost with certainty, provided there does not exist carcinoma of the vaginal cervix. In making the diagnosis of corporeal carcinoma there are two procedures of great assistance that may be adopted,—namely, digital palpation of the uterine cavity after cervical dilatation, and a microscopic examination of the curetted tissue.

Kessler[1] has recently stated that while uterine carcinoma, if encountered in the early stage, can be cured by a radical operation, the mortality of which is only 5 per cent., as a matter of fact not over 15 per cent. of those thus treated survive, because the patients apply too late to be cured. He claims that statistics show that in the majority of the cases well-marked symptoms of the disease had been present for a year or more before the disease was recognized, and *that in 50 per cent. of these women the family physician failed to make a vaginal examination.* A most deplorable fact, if this statement be true, and we have every reason to believe that it is.

When confronted by such figures as these, Stone's suggestion[2] of a systematic vaginal examination at intervals of six, twelve, or eighteen months in all parous women between the ages of 40 and 50 years, while at first sight impracticable, would appear to be an absolutely justifiable procedure.

Given a case of suspected malignant disease of the cervix uteri, what are the features upon which may be based a presumptive diagnosis of incipient carcinoma? They are not many, but to an experienced eye and a close observer they are strongly suggestive. They will vary according as to whether the disease originate in the portio vaginalis or in the cervical canal, and as to whether it appear in the nodular form or as a mere superficial erosion of the surface. A very noteworthy feature in the nodular variety is the peculiar angry appearance of the elevated area, which, while it may be differing but slightly in color from the adjacent healthy mucosa, bleeds freely upon the slightest touch, and is dense and resilient to the feel. Herman[3] considers a smooth, dark-red spot upon the cervix, bleeding upon contact, as a very suspicious symptom indicative of the earliest stage of

[1] St. Petersburger medicinische Wochenschrift, No. 37, 1895.
[2] Virginia Medical Monthly, Vol. xx, No. 12, 1894.
[3] British Medical Journal, May 12, 1894.

carcinoma, the suspicion being stronger should a nodule be felt. The most characteristic feature of the hemorrhage is that it follows a trivial local irritation; thus, it is very common after coitus, or it may be profuse after even the most careful introduction of the speculum in a gynecologic examination. This tendency to hemorrhage is very suggestive.

It is not at all uncommon for the two conditions,—granular erosion of the cervix (the catarrhal patch of Penrose) and early carcinoma to be confounded. In both of these conditions the hemorrhage may occur with almost equal readiness on the slightest manipulation, but the malignant disease is characterized by a peculiar elevation and induration of the periphery of the affected area, which is very striking, and which prevents the ready displacement of the mucosa upon the subjacent tissues, while the cancerous tissue within is exceedingly friable, cutting out easily. This is such a characteristic feature of malignancy that Sinclair [1] regards it as a clinical sign of exceptional value. He states that if the suspected area be exposed through a speculum, and scraped with a sharp spoon curette, it will simply bleed, or, at most, yield small shreds of tissue if non-malignant, while, if cancerous, the soft, cheesy nature of the diseased tissue will be readily recognized. The microscope will confirm the suspicion, but it must be remembered that an examination of the scrapings of the curette will not suffice. As Robb [2] has remarked, "It is possible to have an increase in the number and size of the (cervical) glands, and even the presence of more than one layer of epithelium, without any coexisting malignant disease." It is only when the subjacent tissue is involved in the process that an accurate diagnosis of carcinoma can be made, and this can be determined only by excising a portion of the deeply-lying tissues, either with or without cocain, being careful to include the margin of the healthy as well as a portion of the affected tissue. A microscopic examination of the removed tissue can then be made with a reasonable expectation of arriving at a positive knowledge of the condition. Should malignancy be discovered, an immediate extirpation is demanded, since this removal of a section is in reality a partial operation, and exposes the patient to the risk of a rapid spread of the disease to remote parts through the agency of the opened veins and lymphatics.

Other clinical manifestations of undoubted value in the early recognition of this disease are the characteristic sacral pain—a very common symptom—and the offensive and acrid leucorrhea, which may indeed be the primary manifestation of the disease, present long

[1] Medical Chronicle, 1875, No. 5.
[2] American Gynecological and Obstetrical Journal, New York, September, 1895.

before other more positive changes may be noted. Such a leucorrhea in an elderly woman associated with irritation or excoriation of the parts, or with an uncontrollable pruritus, should excite apprehension as to a possible beginning malignant change, and should, at least, be an incentive for frequent and careful physical explorations of the cervix and corpus uteri to prevent a fatal oversight of the true condition. Associated with the foregoing symptoms must be noted a progressive loss of flesh and strength, and the clinical picture of early carcinoma of the uterus is complete.

NEURASTHENIA: ITS NATURE AND TREATMENT.[1]

By David Riesman, M.D.,

Philadelphia.

Neurasthenia is not a new disease or one peculiar to our own time; it has existed in every age in which society has had a complex organization and man lived under an established form of government. In a certain sense, however, it is new,—new in our nosologic system,—because its recognition as an affection *sui generis* dates back only two decades, to the time when our countryman, George M. Beard, with classic precision, first established it as a distinct disease-entity.

Neurasthenia, as the word indicates, is nerve-weakness; this is the essence of the disease.

Nature has endowed every man with a certain amount of nervous energy that enables him to do his work in life. For the majority of mankind this nervous capital suffices for all contingencies, but there are some, and, unfortunately, their number is constantly growing, who are inadequate to meet the demands that life makes upon them. The causes of this inadequacy may be, firstly, an inherited imperfection of nervous constitution; the physician knows well that it is far from true that all men are born equal,—the inexorable influence of heredity prevents this consummation. Every agency that breaks down the health of the parents is liable to exert an unfavorable action on the offspring. Regarding particularly the formation of a weak, nervous system, alcoholism and gout in the ancestry are weighty factors.

But even if an individual is natally endowed with a good nervous constitution, there is a multitude of influences by which the

[1] Read before the Northern Medical Society, February 28, 1896.

quality of his nerve-force may be impaired. A large number among these arise from the social conditions prevailing in the present age, and act not on the few, but on whole social groups. I have not time to enter into a discussion of the important questions suggested by this thought; suffice it to say that our methods of education, the infinite specialization of labor, the concentration of capital, and the accentuation of the power of wealth, and other industrial conditions, serve to depress and exhaust the nervous system of many who are forced into the thick of the struggle for existence.[1]

Another group of causes act on the individual, and may be termed the exciting causes proper,—of these overwork is the most important,—and it may be either mental or physical overwork. Depressing emotions, as to the loss of a dear friend, the failure of a cherished enterprise upon which nearly all had been risked, exemplify another group of etiologic factors.

Injuries, especially such as are received in railway accidents, frequently lead to profound neurasthenia. Sexual excesses and perverted habits are among the most potent causes of the neurasthenic state; at times extreme and irritating continence, in the face of great temptation, has in some individuals the same effect as the opposite mode of life. These causes are important factors in the production of the morbid fear of which I shall speak.

The abuse of alcohol or of tobacco plays an important *rôle* in the development of neurasthenia; yet we must not forget that neurasthenic patients by their sufferings are often driven into the liquor (or morphine) habit, and it is always necessary carefully to discriminate between cause and effect.

The *symptomatology* of neurasthenia is exceedingly complex, and at first sight the manifestations appear so multiform that one is inclined to doubt whether there is a sufficient number of symptoms common to all cases to justify us in establishing a distinct disease under the name of neurasthenia. But the more we study our patients, the more clearly we shall recognize evident similarities and common characters.

In order to give a more comprehensive description of the symptoms, I shall deal with them under the following separate heads: (*a*)

[1] Our modern literature, especially that emanating from Europe, is strongly tinctured with the signs of neurasthenia, and there is little doubt that some of the world's best-known writers are victims of the disease. The pessimism of the higher classes of society, among which it prevails more widely than ever before, is, perhaps, a manifestation of neurasthenia, and is so considered by Rencurel (Arch. clin. de Bordeaux, June, 1896). It represents a refined type of the disease, that form into which the mind falls that is given to speculating in philosophy or science,—a neurasthénie intellectuelle as distinguished from neurasthénie vulgaire, which occupies itself with material things. The "Weltschmerz" (tristesse de la vie; pain of the world), the theme of many a modern poem and novel, is a sort of transcendental neurasthenia. The best recent example in literature that I can think of is Zangwill's "Chad Gadya."

the psychic, (*b*) the sensory, (*c*) the motor, and (*d*) the somatic symptoms.

(*a*) *The Psychic Symptoms.*—One of the first of these to manifest itself is inability to concentrate thought,—the patient complains that when attempting to think seriously on a certain subject his mind soon wanders, and trivial thoughts foreign to the question engross it. Another symptom is indifference. This reveals itself in a lack of interest in friends, and an apathy towards matters which previously concerned the patient. A neurasthenic woman, 26 years of age, under my care at the present time, whose husband died eighteen months ago of consumption, tells me that she cares for nothing,—she has ceased to love her friends, is indifferent to church-matters, in which formerly she was deeply absorbed, and would not be saddened if she knew she had to die in the near future. Her employment is light, but she does it in a mechanical, automatic way. At the beginning of the winter she made a strong effort to interest herself in dress, but found it impossible. She is now in a state in which, as she expresses it, she does "not care whether school keeps or not." She had a similar attack shortly after her husband's death, but recovered in the course of two or three months.

Not infrequently the indifference extends to the home,—a mother loses interest in her children, a husband in his wife, and each, realizing the unnaturalness of his or her state, comes to the physician for an explanation and relief.

A very interesting psychic symptom is that known as morbid fear. The origin of the fear is to be found either in certain visceral disturbances, or in a realization which the patient has of his weakness and incompetence.

Writers on psychiatry describe a very large number of these morbid fears, to only a few of which I shall have time to refer. The fear may take the form of an intense, indescribable, general anxiety, to which the patient can assign no adequate cause, and in which no special object of dread stands out, yet the feeling is so powerful that it prostrates him completely. A typical example of this came under my observation four weeks ago. A fairly intelligent laboring man, 35 years of age, came to the nervous clinic of the Northern Dispensary, complaining of causeless attacks of oppression and anxiety, associated with palpitation of the heart. He had been out of employment for some time, and, being the mainstay of a large family, had worried a great deal. During the examination, for which he had been stripped to the waist, the man had an attack of this groundless fear; he became deadly pale and ashen-colored, complained of a feeling of intense, uncontrollable anxiety, and burst out into the most profuse

perspiration that I have ever seen; the sweat rolled in rivulets from head and trunk. The apex-beat was imperceptible, the heart-sounds soft and feeble, and the pulse 46 to the minute. He gradually became better, but was still very weak on leaving the clinic. Under treatment he improved, and has not had an attack of anxiety since that day; his pulse at the last visit was 72.[1] All grades of intensity of this general fear exist from the trivial, transient anxiousness to the most awful, unutterable fear that crushes the patient.

A type of fear somewhat different in nature is that in which the person is distinctly afraid of something.

Probably the majority of us are capable of being moved in one way or another to a feeling akin to fear. Some always experience a feeling of anxiety when crossing a bridge, others when standing at a great height or looking out from a window far above the street. In a strict sense these fears are manifestations of neurasthenia. But the confirmed neurasthenic patient is tortured by his fear to a far greater degree,—it may cause him to do acts that border on the absurd. One patient has a fear of crowds, and in consequence secludes himself as much as possible. This fear has received the name of anthropophobia. It was presented by a case at my nervous clinic, a woman of 50 years, who also had a fear of high buildings. In some instances a fear of open places (agoraphobia) exists, the person suffering from it not being able to cross a vacant lot or an open field. Others, again, have a dread of closed places,—claustrophobia.

A type the reverse of anthropophobia is monophobia, or the fear of being alone. Persons affected with it cannot sleep alone or travel alone. Beard relates the story of a patient who paid a man $20,000 to be his constant companion. I have a patient with this fear under my care now. An apparently healthy man, 36 years of age, drank to excess until October of last year; since then, having married, he has been more temperate, but not to the extent to be desired. For the past two months he has suffered from monophobia,—as soon as he is alone a feeling of anxiety overpowers him, he trembles, bursts out into a sweat, and becomes very restless. This continues, with increasing intensity, until his solitude is relieved. A few days ago he had an attack of iritis during which he was in bed. He could not bear to have his wife out of the room for more than a few minutes. When she would go to a neighboring grocery, he would, after he was allowed to be up, go to the window and follow her with his eyes, and as she passed out of sight the anxiety would seize him. He has also

[1] Some of the cases of this type may find their explanation in the new view of subconscious fixed ideas,—a relic of some terrible impression of the past, of which the individual is not aware, rises to higher consciousness and dominates his thoughts. See, in this connection, the interesting paper by Janet (abstract International Medical Magazine for May, 1896).

another symptom, probably related to the one just described. When alone he cannot see a knife without a feeling of fear lest he use it. He has no suicidal impulses, and said he knew he would never touch the knife for that purpose, but cannot master the fear that he might do so. On my last visit I forgot to take away a vial of atropine, and when he called I asked him to bring it as soon as convenient. Knowing it was poison, he said he could not carry it, because of a fear that he might swallow the contents. The man is perfectly rational, anxious to get well, and realizes fully the absurdity of his notions.

Fear of lightning is not uncommon. I also know a very marked case of fear of spiders. A very intelligent married woman, 28 years of age, is thrown into pitiable terror at the sight of a spider, although she can with complacency grasp snakes, lizards, and insects.

Very common, if not most common of all, are the types of fear connected with the viscera. Many suffering from palpitation believe they have organic heart-disease, and live in fear of sudden death. In some the presence of headache, bad dreams, and noises in the ears suggest the approach of insanity. If we study such cases, and can assure them of the idleness of their fears, we may restore to society many a useful member. Fear of cancer is another example; it is met with most frequently in women, and generally has the breast or the uterus as its focus.

Neurasthenic patients are easily frightened,—the ring of the door-bell or a sudden noise gives them a shock the effects of which may last for hours. Supersensitiveness and irritability are rarely absent: the patient is offended by a harmless word, and irritated by trifles. Some, when casually told that they are not looking well, become greatly depressed, entirely out of proportion to the value of such passing remarks. This is a point which we, as medical advisers, should bear in mind, that we may counsel the patient's friends to be cautious in the utterance of their judgments.

Insomnia is very common, but, on the other hand, there may be exaggerated drowsiness, as was the case in the apathetic young woman referred to, who could sleep at any hour of the day.

(*b*) *Sensory Symptoms.*—The commonest of these is headache. There is something peculiar about the headache of neurasthenia. It is usually accompanied by a sense of constriction or of pressure on the top of the head,—the *Kopfdruck* of the Germans. A precocious boy of 12 years told me that he felt as if the front and back bones of the skull pressed his brain together in an effort to meet, and had studied books on physiology in order to learn more about this curious feeling. In some patients the sensation is not one of compression, but of expansion. A trained nurse who suffered from nervous dyspepsia

stated that her headache produced a sensation as if the top of the skull would fly off.

Another patient, a lady's maid, seen at the Medical Dispensary of the Polyclinic Hospital, had a feeling of pins sticking in her head. Various other forms of pain in the head might be mentioned, but it is evident that all have in common a certain grotesqueness or oddity that, taken with other symptoms, distinguishes the neurasthenic from other types of headache.

In some cases there is no real pain, but only a lightness of the head, often associated with vertigo.

A very common complaint is that of a tired feeling, which may come on early in the morning, often as soon as the patient rises from bed. Sleep, though sound and of sufficient length, does not refresh, and the patient wakes as tired as he was on lying down. Such persons usually have pain in the back, which they are apt to interpret as kidney-disease. With this pain, and also without it, there may be points of tenderness along the spine, the spinal irritation of some writers. In women the pain is not rarely in the coccyx.

Pains may also affect the limbs. At times they are accompanied by feelings of numbness and pins-and-needles—forms of paresthesia of which I have seen several examples.

Symptoms referable to the special senses are fairly common. Respecting the eyes, we most frequently note inability to read for any length of time,—vision soon becomes blurred. Retinal hyperesthesia—sensitiveness to light—is occasionally present. Pupillary changes may be observed, and consist, as a rule, in dilatation of the pupil. This phenomenon, it has appeared to me, is most common in the so-called sexual neurasthenia.

With regard to the sense of hearing, we find supersensitiveness and tinnitus the most frequent aberrations. The noises complained of are often peculiar: in one case they took the nature of the roar of a water-fall. Audibility of the carotid pulsation is common; it may be unilateral or bilateral.

(*c*) *Motor Symptoms.*—The motor symptoms of neurasthenia are chiefly a sense of fatigue and exhaustion after trivial exertion. The mere act of dressing or the climbing of stairs may use up the patient's strength. The grasp of the hand is weak, as may be readily demonstrated by means of the dynamometer. In rare cases there is a total indisposition to move on account of fatigue, or perhaps on account of pain attending all muscular movements. Möbius has described under the term *akinesi algera*, a condition in which the patient moves scarcely a muscle of his body, on account of the severe suffering pro-

duced thereby. Whether this affection is a form of neurasthenia or of hysteria is still in doubt.

The tendon reflexes are usually exaggerated, but on continued testing are soon exhausted. Tremor of the hands is frequently seen; at times other parts, including the head, are involved; in such cases the diagnosis from other affections of the nervous system may be very difficult.

(*d*) *Somatic Symptoms.*—I now take up a group of symptoms which, following the example of Dr. Dercum, in his excellent article on neurasthenia in the text-book edited by him, I designate as somatic symptoms,—*i.e.*, body symptoms. Foremost among these are those referable to the digestive tract, which demand special attention on account of their great importance.

Perhaps the most frequent symptom is a feeling of weight and distention in the epigastrium, with eructation of gas and palpitation. If the gastric juice is examined, it is usually found to be normal, and digestion is not delayed. The appetite is capricious, but often good; at times there is a craving for food, satisfied for only a short time by eating. In many instances, however, the appetite is deficient.

Constipation is probably the rule, but there are cases with diarrhea; at times there is an alternation of diarrhea and constipation in the same patient. Mucus may be present in the stools. A medical student, with whom I am well acquainted, has suffered from mucous diarrhea for some time, and has himself looked upon the condition as nervous. He would suffer most on Sunday evenings when visiting a particular young lady. In some patients the movement of the bowels is always attended with great prostration. Neurasthenic patients, as a rule, consume but little fluid.

The Circulatory Organs.—I have already referred to palpitation as a concomitant of the dyspepsia of neurasthenia; it may, however, occur independently of the stomach. At times it is associated with pains of an anginoid character. In some cases there is a sensation as if the heart had stopped,—a very distressing feeling awakening a sense of impending death. To this sensation of stopping the name of paulocardia has been given. I have seen three cases that presented it.[1]

The pulse-rate is usually increased in frequency; at times the pulse presents marked variations under different conditions, being, *e.g.*, about normal in the sitting posture, and increasing to 90 or 100 when the patient suddenly rises. Pulsation of the abdominal aorta may be visible and also felt by the patient.

[1] See Philadelphia Polyclinic, September 7, 1895, for report of cases.

The vasomotor system of the neurasthenic patient is very unstable. Flushing of the face, cold hands and feet, flashes of heat and cold—these are common symptoms.

The Urinary and other Secretions.—As a general rule neurasthenic patients secrete a small quantity of urine, but in some instances the quantity exceeds the normal. The urine frequently contains an excess of uric acid or of urates, and at times of oxalates, and presents the general features of the urine of lithemia.

The sweat is usually diminished, probably on account of the insufficient quantity of fluids consumed; the joints are dry and "crack" for the same reason. The saliva may also be lessened in quantity, causing dryness of the mouth. But, although deficient perspiration is the rule, hyperidrosis of localized areas, as of the palms of the hands, is very common.

The Sexual Organs.—Disturbances of the sexual function are exceedingly frequent, and occupy a prominent place in the picture of neurasthenia. As previously pointed out, sexual excesses are often a potent etiologic factor. In the man the disturbances of the generative function consist in spermatorrhea and too frequent nocturnal emissions, often combined with impotence or other abnormalities. Nocturnal emissions are more common in the single, but may occur in married men. Such a case came to my nervous clinic last year. A married man, aged 31 years, stated that he had more emissions since marriage than before; he had pains in various parts of the body, and was bereft of all ambition. Like many cases of this kind, he had a repulsive, forward manner, and was negligent in dress. He recovered entirely in the course of three months.

Sometimes these patients are unusually intelligent. I have had under my care, and have still for other troubles, a young man of 24 years, a compositor, who had aggravated neurasthenia, but who was very studious and wrote prose and poetry, though only of an indifferent quality. Byron was his favorite poet.

In women the manifestations are not so pronounced; at least, they are not brought to our notice, except in the form of pains in the ovarian region and back.

If true organic disease of the generative organs exists, in which case it may act as an exciting cause of the neurasthenia, the symptoms of the disease will be modified by the development of the nervous affection.

I have now placed before you a long array of symptoms, not all of which are, however, present in every case. One or the other group of symptoms may predominate, a fact which has led writers to speak of encephalasthenia, cerebrasthenia, or cerebral irritation,

myelasthenia, or spinal irritation, gastric neurasthenia, sexual neurasthenia, etc. But such a classification is artificial.

The *pathology of neurasthenia*, like that of all so-called functional diseases, is practically *terra incognita*; our opinions still rest on speculation rather than on actual observation or experiment.

A priori, it is not unreasonable to assume that the ganglion-cells of a neurasthenic person differ in some way, either morphologically or in their chemical processes, from those of a healthy man. Regarding the nature of this variation, an hypothesis has suggested itself, which is based on the present conception of the structure of the nervous system. It is now universally accepted that the entire nervous system is composed of innumerable units, every one consisting of a cell, an axis-cylinder process, and several, or many, so-called protoplasmic processes. Such a unit is termed a *neuron*. These neurons are believed not to be continuous the one with the other, but to be merely in more or less intimate contact. The axis-cylinder of one cell is in close proximity to the protoplasmic processes of contiguous cells, but is not directly continuous with them. Consequently the nervous impulse, whatever its nature, has to overcome a certain resistance in order to pass from one neuron to another. On these facts as a basis, Duval has erected a beautiful and plausible theory of sleep,—namely, that sleep is due to a separation of the processes of contiguous cells beyond the distance existing during waking-hours.

This would obviously increase the resistance through which stimuli have to pass in order to impress the mind. Might not neurasthenia find its explanation, at least in many cases, in an opposite condition? If we conceive the axis-cylinder and protoplasmic processes to be in closer contact than in the normal nervous system,[1] impulses that in conditions of perfect health are unable to traverse the resisting medium between the processes, and, therefore, are incapable of making an impression upon the mind, could readily pass from neuron to neuron and be perceived.

This would explain the irritability of the nervous system,—the fact why trivial stimuli, visual, auditory, visceral, and perhaps psychic, produce disproportionate responses in the neurasthenic patient. The cells, being in a state of more or less constant activity, become fatigued, and would very likely, if we had the opportunity of examining them, reveal structural changes.

This theory, which probably has many flaws, may also be employed to explain the beneficial effects of our remedies,—the latter

[1] In some of the lower animals the protoplasmic processes seem to possess an ameboid movement.

may increase the resistance or the distance between the neurons, and in that way lessen the responsiveness to stimuli.

Treatment.—The treatment of neurasthenia is hygienic, dietetic, and medicinal.

(1) Among hygienic measures the most important is rest; prolonged rest is to the neurasthenic patient what the nightly sleep is to the healthy man. In severe cases it is necessary to adopt the so-called rest-cure, or Weir Mitchell treatment, consisting of rest in bed, massage, electricity, and liberal feeding. This may bring about a cure in an apparently hopeless case. During the rest-cure the patient is not permitted to see his or her friends, is not allowed to read, and is in constant charge of an intelligent, strong-minded nurse.

As important as any of the measures adopted, indeed, deserving to be ranked the foremost factor in treatment, is the personality of the physician. In no disease is it so essential to inspire the patient with confidence, and in none is so much good accomplished by suggestion alone as in neurasthenia. The physician should listen patiently to the almost interminable recital of fanciful ailments, and should always make a careful physical examination to exclude all possibility of lurking organic disease.

If the rest-cure is impossible or not indicated, the patient must take a definite amount of rest by lying down for an hour or two in the morning and in the afternoon,—this is especially valuable in women.

Bathing is not to be neglected. The bath should be of short duration and should be followed by a cold shower-bath or cold douche, with friction. In the so-called sexual neurasthenia, the application of cold water to the spine and the perineum acts as a powerful sedative.

A change of climate, such as a sojourn at the sea-shore, in a retired spot, or a sea voyage of some length, is valuable in many instances.

(2) The diet in neurasthenia should be nutritious; it has no special limitations except when the rest-cure is employed or when distinct indications are present. The patient's idiosyncrasies must be considered. If anemia exists, beef, eggs, and milk are given in abundance; in lithemic cases the meats are restricted, and alcoholic beverages as well as rich articles of food are excluded from the dietary.

For nearly all cases coffee and tea seem to be harmful, and I have been in the habit, perhaps with too strict an adherence to routine, of always forbidding their use.

If symptoms of nervous dyspepsia are present, the sugars and

starches should be as much as possible eliminated from the diet,—the patients often do well when placed on rare meat, stale bread or gluten bread, and milk. Milk is especially valuable in cases suffering from gastralgic attacks.

(3) The medicinal treatment of neurasthenia cannot be a matter of routine, but there are a few remedies that are of benefit in a large number of cases.

At the head stand the bromides, of which I generally employ the sodium or potassium salt in doses of fifteen grains two or three times a day; strontium bromide, in thirty-grain doses, has also given good results, particularly in lithemic cases.

The coal-tar products, either alone or combined with the bromides, are often of value. A remedy for which much has been claimed, but which I have not used, is spermine. The animal extracts have been employed, but it is questionable whether the results achieved are not due to suggestion.

Special conditions will naturally demand a modification of our treatment. Insomnia needs often to be combated; frequently a hot sponge-bath before retiring, or the application of hot towels to the face, is sufficient to winnow sleep. When drugs must be employed, we resort to the bromides, sulphonal, trional, or hyoscine; never, if possible, to morphine. Marked lithemic conditions are corrected by the use of alkaline mineral waters, the lithia salts, or by piperazine and its congeners.

In nervous dyspepsia, in addition to regulation of diet, suitable remedies may be administered. The mineral acids are of value in some cases; antiseptics and sedatives, such as bismuth subgallate, in others. The constipation is treated by the customary methods.

In neurasthenia with disturbances of the sexual functions a combination of bromides and hyoscine is very useful. The patient should also be instructed to sleep on his side (this may be accomplished by having him bind a cigar-box on the back, or by tying a towel about the waist with the knot behind), and to apply cold douches to the spine and perineum. For this class of cases out-door exercise is very valuable.

SOME FEATURES OF THE YEAR'S WORK IN ORTHOPEDIC SURGERY.

[In the service of DE FOREST WILLARD, M.D.,[1] at the University Hospital.]

BY JAMES J. WALSH, A.M., M.D.,[2]

Philadelphia,

INTRODUCTION.

ORTHOPEDIA is of extreme interest to all surgeons. Surgery was originally concerned so much with what have been called mutilating operations, necessary frequently, and essentially life-saving in aim, but still robbing the person of some part. The opportunity presented to do work that leads to the correction and not the production of deformity, appeals strongly to the emotional side of the surgeon's nature.

Orthopedic surgery, one is proud to say, owes much of its advance, in recent years, to the sterling work of Americans. The specialty itself is the only one, perhaps, in which the principal authorities and the main body of the literature are American.

Much, however, remains yet to be done, not so much, perhaps, in the large cities as in the smaller towns throughout the country, where many a deformed child is dragging out a wearied existence that might be made much more livable if the general practitioner knew how to employ the usually simple mechanical and operative procedures and take the necessary after-care for the correction of the ordinary deformities. The trouble is, and always has been, that it is extremely hard to learn orthopedic surgery from books. Not that its operations require extremely delicate technique, nor that its post-operative methods are so complicated that they need careful drilling for their faithful accomplishment, but rather from just the opposite reasons. Operative procedures and corrective methods are, as a rule, so simple that it requires the conviction that comes from seeing to make one realize how effective they are in the correction of deformity. After simple tenotomies and the careful application of casts have placed club-feet in a position where they can be used well and easily if not over-gracefully, or have made possible the use of spastic muscles so that the child can walk that never walked before, then one realizes how much of power lies dormant in these simple measures.

[1] A selection with some additions from "Notes on some Practical Work in Orthopedic Surgery," to which was awarded Professor Willard's Orthopedic prize, University of Pennsylvania, June, 1895.

[2] The writer takes this occasion to thank Dr. James K. Young and Dr. Randolph Faries for suggestions and explanations very cordially given on a number of occasions.

Those of us who had the time and inclination were given such excellent opportunities in this line, in the wards of the University Hospital, that it seemed that some notes on the more interesting of the many and varied cases under treatment might prove of general interest. It is with this idea that they are published.

The important lesson of the year's work was, I think, if one were to sum it all up in a few words, that in orthopedic surgery it is not the dexterous, almost bloodless, performances of tenotomies, osteotomies, and even excisions that is the main thing, but that it is the careful, unremitting, well-directed after-treatment that assures success and secures permanent helpful reliable results.

The notes are, of course, a reflection of this important lesson, and are concerned much more with the course of after-treatment than with the description of operative procedures.

The year has been marked by a succession of interesting cases in most of the usual lines of orthopedic surgery, and the variety of these has made the clinical course eminently practical.

Different phases of the same deformity requiring more and more operative measures for their relief, and varying forms of apparatus for their correction have followed one another or have been in the wards together, and have practically illustrated methods of procedure as no merely didactic teaching could.

This has been especially true of talipes.

I. Some Talipes Cases.

Four equino-varus cases, selected from the number of those under treatment, illustrate very completely the extent to which operative procedures must be carried according to the age at which this deformity comes to the surgeon for correction.

In cases of talipes it is well to commence mechanical and manipulative procedures as soon as the child is born, if possible. The tender age of a child instead of being an objection to this immediate correction is an encouragement. If taken when the tissues are soft and yielding during the first weeks of life, the deformed feet may be readily moulded into proper shape, and easily directed in their growth in that position.

Time only increases the deformity, and the gradual process of complete ossification makes correction harder and harder. If taken immediately after birth very little is usually necessary beyond forcible correction and careful attention, that the corrected position is main tained by suitable felt or metal splints, or better by plaster casts. In mild cases with careful attention a cure will be well advanced before the child is a year old, even without tenotomy. If the child

is permitted to walk upon the distorted foot, the pressure will exaggerate the deformity and make it so serious as even to require mutilating procedures later on. Consequently, if the foot has not been so corrected that it can be placed flat and squarely upon the floor when the walking age is reached, an operation must be no longer delayed. Tenotomy will accomplish as much in a few minutes in such cases as will apparatus in weeks, and save the child, besides, the constant annoyance of pressure for that time. It seems better in such cases to resort to this comparatively trivial measure rather than depend entirely on the corrective power of apparatus, which is slower and more painful in its effects. Where the deformity has been allowed to go uncorrected for some months tenotomies become absolutely necessary.

The rule at the University, and in America generally, is to dress the foot after a tenotomy in at least a fully-corrected position, and it is even advised as a rule to have slight over-correction. Some orthopedists (not surgeons) abroad hesitate to separate the ends of tendons so much immediately after section fearing non-union. This fear is, however, unfounded.

A series of experiments on animals, some years ago, in the University laboratories demonstrated that nature always throws out sufficient material to fill the gap in a tendon, even though the ends may be separated three inches. The opposite custom of allowing the tendons to unite before securing correction practically renders the operation abortive, and tends to weaken the tendon on account of the deficiency of exuded plastic material.

Very young children are not, of course, treated at the hospital, and our youngest case had been neglected for some months.

Case I.—A child, aged 6 months. Deformity: pronounced equino-varus, congenital, and affecting both feet about equally.

Simple tenotomies of the tendo-Achillis and tibialis anticus muscles were done and plaster casts carefully applied. As the child was to be away from observation, the mother not being able to stay long away from her distant home, it was necessary to be sure that the casts fitted properly, and that the child could not kick them off. It might seem a comparatively simple thing to be sure that the casts fulfilled these requirements, but any one who has tried to put casts on young children knows to the contrary. The chubby, rounded, infantile foot, with practically no heel, presents no prominent projections to aid in the retention of the cast, and then its extreme natural mobility before "it must hide in the prison cells of pride," and lose half the functions that nature intended it to have, gives it a range of wriggling movements far beyond expectation, and that some of the scientists

claim to be an atavistic reversion to an ancestor whose prehensible powers and proclivities are well known.

It was only after the second cast had been applied to one foot and the third to the other that finally a satisfactory fit was obtained. The secret of success is to place the foot fully at a right angle with the leg and retain it there while the plaster bandage is applied, and to carry the cast above the knee slightly flexed. A tight or badly-applied bandage without thorough padding will cause injurious pressure and constant pain, and must be avoided, or sloughing will ensue.

After six weeks apparatus was applied and manipulations were begun, and continued for some time.

Case II.—Child, 16 months old, very pronounced equino-varus of both feet, congenital, with the deformity rendered more marked by efforts to use the limbs in the distorted positions. Here tenotomies of the tendo-Achillis and of both anterior and posterior tibials seemed the indication. These were done and the feet put up in casts. At the time of the operation attention was called to the unusual rigidity of the feet and the prominence of the astragali. It was impossible to make the latter slip back into place between the malleoli. It seemed unwise, however, to do a multilating tarsectomy on so young a child until all simpler means had been thoroughly tried and found unavailing.

Twice the casts were renewed in the case, and every effort made for nearly three months to get the foot to retain the corrected position, but without success. Finally a Phelps's open incision was done, all structures that resisted correction being divided down to the bone. The wounds granulated very satisfactorily and healed uneventfully. The result was functionally a very good one, and the scar and furrow left after the operation were not so prominent as might have been expected. Walking apparatus was subsequently applied.

Case III.—Male, age 10 years. Deformity: talipes equino-varus in a marked degree, congenital, and never submitted to any treatment. A typical example of "reel feet," the turned-in feet being lifted over one another when he walked, as the spokes of a reel revolve now up now down when the instrument is put in motion. Both astragali projected very prominently on the dorsa of the feet, and it was very evident that it would be impossible to get them into their normal position between the malleoli. The usual conditions of pressure and counter-pressure being absent in such cases, the astragalus grows not in its normal shape but in a very distorted way.

The indication is to remove the distorted astragalus and put the foot into a position where the other joints of the series at the ankle

will have a chance to make up, as far as possible, for the impaired astragalo-tibio-fibular articulation. Frequently, however, good ankle motion is secured in time. The removal of the normal astragalus, owing to the irregularity of its outline is, even on the cadaver, where there is no blood to obscure the site of operation, a task requiring extreme patience and care. In these cases with distorted astragali, where the ordinary anatomical lines of the bone do not serve as a guide, astragaloid excision makes a delicate test of operative skill and neatness.

Both astragali were removed in this case at the clinic and the feet put up in gypsum casts in a slightly over-corrected position.

The surgical course of the case after operation was uneventful. The casts were removed after three weeks and showed the cicatrix of an absolutely sterile wound that had healed by first intention. Fresh casts were put on, care being taken to maintain a well-corrected position of the foot. After this he was allowed to run around on the casts for four or five weeks, when he was given suitable braces. The position secured by the operative procedures was an excellent one, and the functional result very satisfactory. In time the braces and the gradual development of muscles improperly used up to this time will still further improve his condition.

Case IV.—Girl, 14 years of age. Deformity: congenital equino-varus. The process of growth and the use of the feet in their faulty position have exaggerated the original deformity very much. Not only were the astragali very prominent, distorted, and misplaced, but the external malleoli, owing to the faulty application of pressure from walking in the deformed position, have become enlarged and mis-shapen.

In this case, even after the excision of the astragali, it was found impossible to bring the feet into good positions owing to the serious deformity of the external malleoli. These were accordingly removed by a saw-section just about the level of the normal astragalo-tibio-fibular articulation.

After the exsection the feet in slightly over-corrected positions were put up in plaster casts. These were removed after three weeks, and the incisions found healed by first intention. Only a little serous exudation had stained the dressing, and that was perfectly sweet in odor and healthy. Considerable manipulation and interference with the incised tissues had been necessary for the excision of the astragali and the exsection of the malleoli, and some inflammatory reaction must have taken place, but thorough aseptic precautions had prevented this from going beyond the first stage, and under rest it had subsided practically without any symptoms.

Still further correction was secured in the new dressings which were put on, and after some time the patient was allowed to walk around in the casts. Not much improvement could be noticed in her walk at first, though now the feet were secured in correct positions, but when patients have for years been using their muscles in the abnormal way, necessitated by faulty position of the feet, there is necessarily a good deal of awkwardness when the attempt is made for the first time to use them as nature intended. After the removal of the casts, and the substitution of braces to secure proper correction, this awkwardness in the use of the limbs began to pass off. It takes considerable time, however, to eradicate the faulty habits of years, and, as the patient's improvement was constant up to the time when she passed from observation, it was not too much to assure her that most of it would finally disappear.

II. Deformities due to Nervous Diseases.

Up to within very recent years it has not been considered of any avail to attempt to relieve by orthopedic measures any serious deformities due to nervous diseases. Such cases have been dismissed with the expression that as nature did not have the requisite nerve-force to supply the affected limbs, it was useless to try to benefit them by any surgical means. The neurologists have said of cerebral palsy the absence of cortical brain-cells is the cause of the spastic condition of the muscles, these cannot be supplied, of what use will it be to do tenotomies and set the limbs in correct positions; after union the spasm will inevitably recur, and with it the deformity.

Of late, despite the conclusiveness of this *a priori* reasoning, patients deformed from nervous disease have been operated upon and with very gratifying success.

Americans first attempted this line of work, and it is to them that is due the entire credit of its success. Such distinguished authorities as Hoffa, in Germany, and Redard, in France, attribute the initiative in this matter to Professor Willard, and further state that he is constantly widening the limits of benefit which orthopedic surgeons can accomplish for this class of cases.

When once muscles are put in a position in which they can exercise their function normally, the very exercise of this function seems to react on the nerves that supply them, and give them additional vigor. Nerve-centres cannot be supplied, but those that exist can be trained to do all the work of which they are possibly capable, and so supply the place of absent or atrophic cells.

In cerebral palsy the relief of the spastic contraction of the muscles, when the limbs are put in proper position after tenotomies,

very soon shows itself in an improvement of all the vital nerve forces. Even the intellectual condition of the patient, never very high, begins very soon to show decided improvement. Hope, confidence, and courage become visible upon the countenance and replace the stolidity so common before; the association with those of their own age, the seeing of friends, the coming in contact with those outside of the immediate family instead of the state of segregation and almost solitude to which they were condemned before, has a great deal to do with this. Environment has much to do with the inflow of ideas, and even a normal child placed under similarly restricted surroundings would fail to develop to its limits. But there is undoubtedly another etiological factor present. It is as if the continuous spasm of the muscles had been consuming vital nervous energy which now, that the spasm is relieved, has an opportunity to exert itself to some good purpose along other lines. The explanation may seem rather theoretical, but there has been without doubt, while the spastic condition existed, a continuous stream of nerve impulses being sent down to the contracted muscles and to no purpose.

This has been a drain on the already not superabundant nerve-force that has been felt by the whole organism. The relief of the condition has consequently led to a general improvement of the nervous condition, and this is easily reflected in the intellectual faculties.

Two of the cases of cerebral palsy treated have been interesting from the inveteracy of the condition, the helplessness of the patients, and the relief afforded.

Case I.—Girl, aged 13 years. Spastic cerebral palsy. She practically had never walked, though she had learned to drag herself around on a pair of crutches with her toes only touching the floor. Contracture existed at the ankle due to spasm of the gatrocnemius and soleus, the foot being in equinus. There was contracture also at the knee, from spasm of the biceps, semitendinosus, semimembranous and sartorius, the hamstrings standing out prominently beneath the stretched skin.

Contractures at the hip were also present, due mainly to spasm of the adductors causing a tendency to adduction, and giving the scissors gait so typical of the affection.

The history of the case is a type of this class. A first child, born at seven months, always extremely delicate, cut her teeth late, the first after she was a year old, did not sit up alone until she was over 3 years old, and did not begin to talk until she was nearly 5. Everything points to lack of cerebral development, or should we say lack of cerebral cells to undergo development. It is the lat-

ter expression that is the favorite one with the neurologist, and constitutes the reason usually given for non-interference in these cases.

The operative procedures in a case of this kind are of the simplest. The tendons of all muscles that resist the reposition of the limb into its normal shape are cut. Casts are then applied to keep the limbs straight and resist the tendency to spasmodic contracture that will recur as soon as the tendons have united again. At the hip this tendency is overcome by the weight of the casts on the limbs which are carried up as high as comfort and a due regard for cleanliness will permit.

The tendency to contraction of the adductors, so typical a deformity in these cases and the cause of the scissors-like movement when progression is attempted, is overcome by keeping the limbs stiffened by the plaster casts widely separated until the fibrous band in the divided adductors has been fully deposited.

The dressings can usually be allowed to remain for four to six weeks, when they will probably have to be renewed, first being sure, by placing the patient face downward, that sufficient correction of the tendency to spasmodic contraction at the hips is being overcome, and taking careful precautions in the application of the second set of casts.

After about three months braces are to be fitted. These have a lock-joint at the knee, and are carried well up the limb on the inside and to a band around the waist on the outside. They need to be padded at the knee and ankle, and are fastened to a pair of shoes so arranged as to overcome any deformity of the foot itself. They keep the limbs absolutely rigid and are an essential part of the treatment, the patient meanwhile using crutches until the tendency to spasmodic contraction, which may take a year or more, has passed away.

These are the details of the procedures employed in the girl's case[1] just mentioned, and also in the case of a boy who came with spastic palsy.

Case II.—Boy, of 8 years, who had never walked. His only mode of locomotion was on his hands and knees, his hands being firmly fixed some distance in front of him he then dragged the rest of the body forward. His lower limbs were so contracted that he was able to use them but little even in this mode of progression. Yet, as is the rule in these cases, they were not atrophied. The muscles were rounded and full, but soft and flabby from want of exercise.

[1] I saw this case (December, 1895) about a year after beginning treatment. She still uses crutches, but is able to move around easier, though she had never walked before. What surprises her friends is the wonderful improvement that has taken place in her mental condition since she was operated upon.

After tenotomies and casts for some months he was put on his feet with braces and crutches, and at last accounts was improving in his walk, and brightening up in intelligence.

Progressive Muscular Atrophy.—One very severe case in which the atrophic process had ceased for some time was under treatment, and was decidedly benefited as far as locomotion was concerned.

Case III.—The patient, a man of 35 years, had suffered some years ago from progressive muscular atrophy, which had involved the arms completely and the legs partially when its progress stopped, at least for a time. There had been no further evidence of the advance of the disease for more than a year when he came to the hospital. As a result, perhaps of the disease but mostly of faulty position in bed, contractures of the muscles had ensued, and the hip and knee on both sides could not be straightened.

The wasting of the muscles had been quite extensive, and it looked hopeless to attempt to help him by surgical interference. The tendons at the knee and hip were cut, however, the limbs put in corrected positions in casts, and after five weeks he was fitted with braces. These were made strong so as to be a firm support to the body, for the atrophied legs could perform little of their normal function and were mainly useful as something to which to attach the apparatus. With the aid of a pair of crutches he was able to walk, though not very well, for his arms had shared in the atrophic process and he was unable to aid himself as one normally would. He left, however, feeling that his condition was much better than his absolutely bedridden condition before, and rejoiced that he was able to get out of his room to move about.

III. Deformities arising from Tubercular Joint-Disease.

Anchylosis of hip and knee in bad position are frequently neglected. The dread of lighting up again the tuberculous process that had already worked such havoc to the joint-structures, of perhaps fanning into a new flame a focus that nature had encapsulated for her protection, has often deterred surgeons from attempting to put the limbs in a better position. Osteotomies at or near the original seat of disease, after long quiescence or wedge-shaped excisions, are the favorite operations for correcting these resultant deformities, and usually give satisfactory results.

Now, however, forcible straightening is frequently employed after the disease has been dormant for some time, the adhesions between joint surfaces being gradually and gently broken up under ether and the limb placed in good position. Where the deformity is

great this is not all done at one time, but a certain amount of correction attained the first time and then the patient put to bed, kept perfectly quiet by means of sand-bags and extension, or by a plaster-coat, and his condition carefully watched for any inflammatory reaction that may result from the manipulations.

If the reaction as indicated by local inflammatory symptoms and the pulse and temperature are marked, any further attempt at correction is deferred for a considerable time, otherwise, as soon as the local tenderness subsides, further correction is secured.

Two cases out of a number in the ward during the year illustrate the success of this method of treatment.

Case I.—A boy of 12 years, in whom, five years ago, there had been severe tuberculous arthritis of the hip that had gone on to suppuration and the production of two sinuses, the cicatrices of which are very evident. The disease had gradually passed off, leaving the joint anchylosed in a position of flexion to 100 degrees together with adduction.

Under ether the adhesions were cautiously broken up. Some of the deformity in these cases is always due to the inflammatory thickening of structures about the joint, and these must be made to yield and to accommodate themselves to the proper position of the bones. Not much force was employed the first time, and after correction was evident the patient was put to bed with fixation to note the result. Nothing untoward was observed, and at a clinic three weeks later the limb was put into good position, and then retained there by suitable splints and sand-bags. The final result was functionally excellent, and the boy went out with a much more useful limb than he had had before.

Case II was that of a little girl of 8 years, whose history might well have discouraged surgical interference. Her father had died of tubercular phthisis, and during his last year of life the child had been almost constantly with him. At 3½ years she had developed "sore eyes," and the mother's description of the chronic course of the disease and its recurrence so often after apparent cure left no doubt that the trouble had been phlyctenular conjunctivitis or worse, and tubercular in origin. The child had, when she came under treatment, the pale, delicate, anemic countenance of what is sometimes called the scrofulous diathesis. When between 4 and 5 years coxitis developed, and later tubercular arthritis of the knee. Neither of them had gone on to the formation of sinuses, but both had led to anchylosis of the respective joints. Here, too, the adhesions and constrictions around the joints were carefully broken up at two clinics and the limb placed in good position with thorough fixation. After about

twelve weeks the little girl was ready to go out. There was only three-quarters of an inch difference in the length of the two limbs. Though, of course, the functions of the joints had been destroyed and the limb was anchylosed.

Spinal Caries.—Two interesting cases of caries of the spine illustrate some of the unusual features of that affection. Both patients had complete paraplegia, and one of them had in addition complete anesthesia of both limbs from the hips down. In both the disease was located in the mid-dorsal region. In neither was it very extensive, at least it did not produce nearly the amount of deformity that some of the cases treated during the year had exhibited, though the latter had none of the serious paralytic symptoms of the two cases under consideration.

CASE I.—The paraplegic was a little Italian boy of about 3½ years, fat and well nourished, There was more deformity in his case than in the other. He had completely lost the use of his limbs. Gradually motion returned under rest in bed, with extension and counter-extension, perfect fixation by means of a cast, and daily applications of massage and electricity, just enough current being used to excite contractions in the muscles and yet not give pain. After about five months he was able to be up and around the wards, and a month later, though still wearing a cast, was allowed to go home, practically able to walk as well as ever.

CASE II was a more serious one, sensation and motion being both completely lost. In this case, besides the cast, weights were applied to the legs and extension secured by padded straps beneath the chin and occiput and fastened to the head of the bed. These straps were left to the patient's own control, and when they became too irksome he was allowed to remove them and rest for awhile. Here, too, but much more slowly, recovery gradually took place. Sensation by degrees returned and stole slowly down the limbs. Only from week to week could it be noticed that the line of sensitiveness was lower down than before. At the end of eight months sensation had almost entirely returned, but motion was only beginning to come back. At the end of the year there had been marked improvement, but he was still unable to walk.[1]

In this case the kyphosis, evidencing the extent of the disease and the number of vertebræ affected, was only comparatively slight.

Acute angulation of the canal rarely produces paraplegia and paresthesia, though it might be expected to do so from the gross morbid appearance post-mortem. Here with paralytic conditions

[1] One year later he could sit up well with the support of head extension attached to an overhanging arm, control of bladder and rectum had returned, and motion was slowly returning.

absolute there was absent any evidence of such a factor in the etiology of these symptoms.

Removal of the laminæ to secure release of injurious pressure upon the cord has been done in a number of cases, but the results have not been permanently satisfactory. These cases of spinal paraplegia, as a rule, recover, showing that the tubercular deposit within the canal may be absorbed and permit restoration of cord functions.

AN ANENCEPHALIC MONSTER.

By Alfred C. Wood, M.D.,

Instructor in Clinical Surgery in the University of Pennsylvania; Assistant Surgeon to the Hospital of the University of Pennsylvania; Surgeon to the Philadelphia Hospital.

Although the case here described represents one of the commoner forms of fetal malformation, it presents some features of interest that seem to the writer to warrant this brief report.

Mrs. H., aged 31 years, a robust, healthy-looking woman, born in Ireland, came to this country when 19 years of age. Menstruation appeared in her 13th year, and had always been regular and natural. She married at the age of 22 and had three healthy children before the present one; the first a girl, now 8 years old, and the second a boy, aged 6, are both healthy. The third child, a boy, who if now living would be 4 years old, died ten months before the recent confinement.

The date of the last menstrual period is uncertain; on account of the grief caused by the loss of her youngest child, this fact was not noted. She thought she felt quickening on November 4, 1895, and from this calculated that she would be confined early in April. According to the commonly-accepted date of "quickening" labor might have been expected about April 19.

Early in gestation, in going down-stairs, Mrs. H. stepped on a kitten, and was very much frightened. She recalls no other unusual occurrence during her pregnancy. She thinks there was less "movement" with this than with her previous children, and she observed that she was "larger and heavier" than she had been when carrying her previous children. Her "peculiar shape" was the subject of remarks by her friends. Otherwise she felt in nowise different from what she had before.

The first labor-pains were felt a little before four o'clock on the afternoon of May 14, 1896, and she sent a messenger requesting me to attend her. I arrived at the house at 6.15. The patient was then

PLATE I.—An Anencephalic Monster.

PLATE II.—Placenta showing Meso-cord.

having violent, almost constant pain. I was at once struck with the tremendous distention of the abdomen. On making an examination, the os was found fully dilated and the unruptured bag of water projecting. It was impossible to obtain any idea of presentation or position on account of the unusual distention. On rupturing the membranes an enormous quantity of amniotic fluid escaped; there literally seemed to be two or three gallons.

The pains ceased at once. It was still impossible to determine the presentation. Digital examination showed the lower uterine segment to be completely empty, and abdominal palpation gave no information, the uterus not having contracted down upon the fetus. Finally, one foot presented, and I made an attempt to deliver hastily. The child seemed to become impacted, and the necessary manipulations were so painful that I sent for ether, and Dr. W. A. N. Dorland very kindly responded promptly to a request for his assistance. Before the ether arrived, however, vigorous pains returned, and the delivery was accomplished at 7.15 by traction on the feet and pressure from above, aided by the violent expulsive efforts of the mother.

The shoulders were delivered with some difficulty on account of the unusually large bisacromial diameter, and this fact naturally led to the anticipation of greater difficulty in securing the expulsion of the head. To our great surprise, however, as soon as the shoulders appeared the child was born, and the dorsal surface presenting anteriorly the first impression was that it had no head.

That the exact cause of such vicious development is unknown is now a trite remark. The question of maternal impression is always foremost in these cases; were the grief caused by the death of her child and the fright that followed treading on the kitten in any way responsible? The connection between cause and effect would be difficult to establish, and I mention the facts without comment.

The appearance of the child, which was an anencephalic monster, was characteristic, and is shown in the accompanying plate. (Plate I.)

The head is sunken between the shoulders, the eyes protrude, and the features are distorted, the cranium is absent, the shoulders are broad, and the trunk and limbs well formed. As not infrequently happens in these cases, there is failure in the development of a portion of the spine, the defect being covered by a delicate membrane, such as that seen on the head. The condition of hydramnios is also commonly observed in conjunction with anencephalic monsters. The weight of the child was two kilos. and 270 grammes. The placenta presented a healthy appearance and weighed 500 grammes.

There were, however, some points in which this case differed

from the rule. According to Hirst and Piersol[1] most anencephalic children are females, the fetal movements are apt to be more vigorous than in normal cases, and labor usually takes place before full term.

The case here described is a male. The mother describes the fetal motions as having been distinctly less marked than was the case with her other children, in spite of the fact that the development of the child, excepting the head, appeared very good, and the delivery did not take place until six months and ten days (192 days) after quickening was felt, whereas labor would usually be expected about 143 days after this event.

The placenta, which was entirely healthy to all appearances, presented the unusual condition to which the name meso-cord has been given. The cord being inserted centrally, as is the rule, is adherent from this point to the margin of the placenta (see Plate II). A indicates the insertion of the cord. The blood-vessels are seen radiating from this point. B is the termination of the meso-cord at the margin of the placenta. Between these points the cord is firmly adherent. The hooks and chains were inserted for the purpose of making traction in order to show the firm union that existed.

REPORT OF TWO CASES OF CHRONIC APPENDICITIS.

By L. J. Hammond, M.D.,

Philadelphia.

That there are cases of appendicitis where the cure by medical treatment is only apparent is well recognized, and attention has been called to them by the classical studies of Fenger, who designates them by the term "post appendicitis," and also by a dozen cases referred to by Dr. Czerny.[2]

The two cases here reported represent so clearly the great discomfort that these patients are doomed to suffer when their attacks are repeatedly treated medicinally, that I have thought it worth while to give the history of each case in detail from the first attack.

Case I.—P. McC., male, aged 23 years, grocer by occupation; after an attack of diarrhea lasting forty-eight hours he was taken with severe pain in the right iliac region in November, 1894. I was unable to get the history from the medical attendant at that time, though the patient's account of his condition was that in addition to the

[1] Human Monstrosities, Part II.
[2] Revue de Chirurgie.

severe pain there was great tenderness on palpation over a large part of the abdomen, with high fever and vomiting lasting for eight days. The treatment during this attack, in part, at least, consisted of hot fomentations over the abdomen and hypodermic injections, which were probably morphine, as he said they eased his pain. At the expiration of three weeks he was able to return to his work, and, with the exception of slight discomfort in the cecal region, he was free from pain until the following February, when he was again confined to his bed with symptoms similar to those of the previous attack. This time he was not able to resume his duties for five weeks; he suffered greatly from constipation since the first attack, in November; from this time on until I saw him on January 18, 1896, fourteen months after his first attack, I found him in bed, where he had been for one week, with a temperature of 104° F., pulse 128, the abdomen was tympanitic, and there was a diffused pain over the entire cavity, the bowels had not been opened for six days, there was great tenderness on palpation, the tongue was dry and heavily coated, there was vomiting and profuse perspiration. By repeated enemata of turpentine and glycerin, ice over the abdomen, and one-half grain of calomel every hour, I succeeded in getting a bowel movement, the vomiting, however, continuing. The patient was very anxious to have an operation performed, as he said he had grown tired of these repeated attacks, and while I agreed with him that an operation was the only thing that could promise him a cure, I was disposed to allow the attack to subside, knowing that the repeated attacks which he had already suffered had made the abdominal viscera more tolerant than it would have been had this been his first attack, as he assured me it was only a slight exaggeration of the last attack. During the night of the same day, however, that I saw him, I was again summoned, and found he had had a severe chill, the pulse was 140, and temperature 105° F.; the patient was put in a cold pack and immediate operation was advised. The abdominal cavity was opened in the morning by the lateral incision, the omentum was adherent to the peritoneum, so that it was necessary to ligate four inches of it before the intestines could be exposed; it also was adherent to the latter; the intestines were thoroughly matted together by adhesions to themselves, to the bladder, and to the abdominal parietes, and two small abscesses were found within the intestinal folds on the right side. The appendix was found after considerable dissection or tearing away of adhesions, embedded within a mass of inflammatory lymph, and was removed, it being nothing more than a cicatrical string, its lumen was entirely obliterated, and had long since ceased to play any part in the production of these inflammatory attacks; the adhesions were all thoroughly

broken up, and the entire cavity flushed with hot water, and sterilized gauze was used as a drain, the incision (which was five inches in length) was then closed, except at its lower margin, in which was placed a drain; the patient made a most satisfactory convalescence, and was able to sit up by the expiration of the twenty-fourth day and to resume his duties in the fifth week. He has continued at his work ever since, suffering no inconvenience except slight tenderness along the site of the incision. It is clear to me that the operation was urgently needed at this time, for with a chill followed by a temperature of 105° F. and pulse 140 for eight hours, it had but one significance, and that was the formation of pus, and to have longer delayed the operation would have endangered the life of the patient. The history of this case, then, until this last or the sixth attack was clearly one intermittent in character, as the patient suffered but little inconvenience, except for mild pain referable to the cecal region, and while the ultimate result was all that could be expected, it seems to me a case of this kind ceases to become a medical one after the second attack, as there is no doubt but what each attack added an increased number of adhesions until we find the entire abdominal viscera matted together; it is also important to note the dangers not only of the excessive formation of adhesions, but also that of fecal accumulations, which are so clearly shown to have existed in this case.

Case II.—J. C., male, aged 26, by occupation a compositor, was in excellent health until September, 1894, when he was attacked without any apparent cause with severe pain in the cecal region, with vomiting, and great tenderness over the same region for a day, after which it extended over the entire abdomen; he was confined to his bed for six weeks and was then only able to move around his room, not, however, without considerable pain; from this time until he was operated on, March 22, 1896, he was never able to work two weeks in succession, most of his time being spent in bed or quietly in his room; during this period of nineteen months he had ten attacks, each of them confining him to his bed, with severe pain, tympany, obstinate constipation, uncontrollable vomiting, and profuse perspiration. Through the courtesy of Dr. Henry Jump I saw him in March last, when he was just getting over one of his attacks,—the doctor having seen him for the first time a few days before. The patient was more than anxious for an operation; at my suggestion, however, that we wait until the attack, which was slight, was over, the doctor continued his treatment of ice to the cecal region and calomel by the mouth for a few days; the temperature and pulse becoming normal, and the man's general condition very good, on March 22, 1896, the abdominal cavity was opened by the lateral incision, the omentum was adherent to the

peritoneum and to the intestines, it being necessary to ligate several inches of it off before the intestines were exposed, there were extensive adhesions of the intestines both to the bladder and to the abdominal walls; it was one of the most difficult tasks to free the appendix from its bed of adhesions; when, however, the dissection was accomplished the appendix was found curled upon itself, resembling in appearance very much that of a muck-worm; here also there was complete obliteration of its lumen; there was no pus present; several knuckles of bowel held firmly by adhesions were with difficulty freed; the adhesions were all broken up, bowels liberated, the cavity washed out with hot sterilized water, a gauze drain used, and the incision closed. The patient suffered no shock, the temperature remaining about 100° F. for twenty-four hours, after which it never went above 99° F., the patient being able to leave his bed on the fourteenth day, and resuming his occupation in the fifth week; he has lost no time since.

It will be seen that the morbid conditions that were found in the abdominal cavity were very like in both of these cases, and were probably identical until the last attack of the first case when the pus was formed, and still the symptoms were somewhat different, being more remittent in the second case,—that is, a constant pronounced uneasiness from the very first attack, while in the first case there was distinct intermission, the patient feeling entirely well during the interval.

The treatment by operation in these cases is usually so successful and the operation often very simple, unless, of course, cases are met with where it is necessary to resect the cecum, that it would seem to be wise counsel to urge operative treatment after the patient has had the second attack, provided it follows as closely upon the first as was the fact in these two cases.

AN APPARATUS FOR BATHING TYPHOID FEVER PATIENTS IN HOSPITAL PRACTICE.

By Henry L. Williams, M.D.,

(Service of Dr. Alfred Stengel, Howard Hospital, Philadelphia.)

Since the introduction of the Brand method of treatment for typhoid fever, a number of devices have been suggested to the profession for placing the patient in and out of the tub. The object of each has been to save the attendants the labor of lifting the sick one,

which becomes a very serious obstacle to the application of this method through a long course of fever.

It is hardly necessary to argue that some device which might materially lighten the task of putting the patient into the bath would be highly valued in our large hospital practices. But up to the present time every apparatus that has been proposed has met with some objection which has prevented its general adoption.

A few years ago a special typhoid fever bed was devised in Paris and was so constructed that the patient was raised by a tackle arrangement suspended from the canopy and then lowered into a tub of water, which had been placed beneath the bed, the mattress and bedding being swung to one side. While this appliance worked well,

FIG. 1.

its construction was very expensive, and its general adoption in hospital practice obviously impracticable.

A special tub also has been constructed with a slat platform attachment so arranged that the patient might be moved onto it from the bed, and then lowered into the water by turning a handle which operated a number of cog-wheels. This was tried, but also found to be unsatisfactory. The same may be said of the other appliances.

The need which seems to be felt is for some form of apparatus which is simple, inexpensive, easily constructed, put together, and taken apart, and which may be readily adapted to the ordinary ward bed.

It happened very recently that a large colored man, having typhoid fever, was received into the ward of the writer, in the service

of Dr. Alfred Stengel, at the Howard Hospital. The temperature remained above 104° F. for more than a week, except when temporarily reduced by hydrotherapy. The Brand method of treatment was followed, but although a tub was placed conveniently at the bedside, it required the combined strength of three persons to place the patient in the bath. After a few days of this treatment, the labor of lifting the man became so exhaustive to the nurses that the full bath was given up and the cold pack resorted to in its stead.

In this difficulty, the question presented itself to me of devising an appliance with which the man might be readily handled and placed in and out of the tub without difficulty. After some little experiment the apparatus about to be described was constructed, which

FIG. 2.

seemed to meet the requirements of the case, and which worked with entire satisfaction in actual practice.

Two nurses are enabled by this means to administer the bath with very little exertion, while the patient is handled in perfect comfort and relaxation, with no effort on his own part.

As is seen from a glance at the figures, a wooden frame is constructed with a span long enough to reach more than the entire length of the bed. From this frame a canvas hammock is suspended and so arranged with double pulley blocks that it can be rapidly raised or lowered. Roller castors are fastened into the bottom of the legs of the frame.

In applying the bath, the bed is drawn out a few feet from the wall and the apparatus moved directly above it. The patient is then

moved near one edge of the bed and rolled slightly upon his side. The pulley ropes being relaxed, the canvas is lowered and slipped beneath the patient, after the manner of a sheet. On pulling upon the ropes the patient is now raised in the hammock in perfect comfort. The ropes are only drawn until the body is raised clear from the bed, as shown in Fig. 1, and then fastened with a half hitch about the cleat. The entire apparatus is then rolled a little to one side, as shown in Fig. 2, until the patient is directly above the tub, which has been placed at the bedside. The ropes are next loosened and the patient gently lowered into the water, as shown in Fig. 3.[1]

While the patient is being given the bath, a rubber sheet is spread over the bed so that the clothing may not be wet when he is

FIG. 3.

returned from the tub. On returning the patient to bed, the operation as above described is exactly reversed.

Numerous holes are arranged in the canvas so that the water may readily drain off as the hammock is raised.

The frame is so constructed that it can be taken apart at a moment's notice. The cross beam is held to the uprights by two pins, as shown in A, cut No. 1. The side brace extending from upright to upright is also held by two pins, as shown in B.

The length of the cross-beam between the uprights is eight feet

[1] The first picture shows the patient apparently much doubled up, and in Fig. 3 the position seems somewhat erect. This is not so much so in reality. As a matter of fact, the man expressed himself as being in perfect rest and comfort Fig. 3 shows the upper end raised so that the head may be supported out of water while the rest of the body is submerged.

four inches. The cross-beam is six feet above the floor. An iron brace, which hooks into the cross bar from the upright, as shown by C, helps give the frame stiffness. The method of fastening the uprights, and the arrangement by which the cross-bar is attached to them, is shown by D. A cleat, E, is fastened to each upright to secure the ropes.

The hammock is made from a piece of heavy cotton duck six feet long and thirty inches wide. A rope about the size of a clothes-line is lashed to each edge, and the ends of the canvas lapped over and firmly sewed, so that an iron rod, bent into the shape of an arc of a circle, may be received into it.

Fig. 2, F, shows how the ends of the hammock are fastened and attached to the hook in the pulley block.

In rigging the blocks, care should be taken that the final pull is made from the *upper* block, and not the lower.

The details of construction are as follows:

Frame made from straight spruce, 2 inches by 3 inches.
Length of uprights, 6 feet 3 inches.
Spread of legs of uprights at the floor, 3 feet.
Length of cross-bar between uprights, 8 feet 4 inches.
Side rod connecting uprights, 2 inches by ¾ inch.
Height of side rod from the floor, 34 inches.
Spread of iron bow at ends of hammock, 21 inches.
Length of iron brace hook, 30 inches.
Size of tennon at end of cross-bar, 1½ inches by 2¾ inches.
Total cost of construction, about $15.00.

SOCIETY REPORTS.

PHILADELPHIA PATHOLOGICAL SOCIETY.

MORBID SPECIMENS AND BLOOD OF LEUKEMIA.

BY DRS. M. H. FUSSELL AND A. E. TAYLOR.

THE reporters request that these notes be considered a preliminary report only.

Mrs. G. M., English, aged 37 years, married, has six healthy living children. Father died of phthisis; mother living and well. Four brothers and three sisters living and well; none dead. She is the wife of a drunkard and as such has had a slave's life, but other-

wise no unusual hardships. When young had a tuberculous knee. At the present time is nursing an eight-months-old child.

She was perfectly well, so far as it is possible to obtain a history, until six weeks before she came under observation, at that time she became weak, no pain, no dyspnea, no palpitation of heart, no headache, but simply loss of appetite and weakness. She went to bed two and a half weeks ago with fever and diarrhea. I saw her then with a temperature of 101° F. in the morning, and 103° F. in the evening. It has ranged between these points until the present. When first seen she was not unusually pale. Her urine contained albumin and casts. During the last week the albumin and casts became less, but the patient became very rapidly anemic, with much dyspnea, increasing and severe edema, nausea, and much nose-bleed.

Physical Examination.—Six weeks after first symptoms, two and a half weeks after first visit to home.

Heart-dulness normal, a soft systolic murmur at base and in vessels of neck.

Lungs.—Resonant throughout with no abnormal signs.

Liver.—Dulness begins at fourth rib and extends to the umbilicus in the nipple line. The lower edge of the liver can be felt in the abdomen four ribs, extending from nipple line around to the loin.

Spleen cannot be felt below edge of ribs; dulness from the posterior axillary line to nipple line and from seventh rib to margin of ribs.

Belly is distended, skin free from any eruption.

Slight right spinal curvature. Fixed left knee with old healed sinuses.

Lymphatic Glands.—Submaxillary glands are enlarged, inguinals enlarged slightly, axillary glands cannot be felt.

Blood.—Hemoglobin 32 per cent.; red corpuscles 1,184,000; white corpuscles 241,333.

May 24, 1896. Two days after examination much dyspnea.

Blood.—Red corpuscles 1,273,400; white corpuscles, 362,500; hemoglobin 32 per cent.

Temperature normal for the first time in two weeks.

There are two bullæ size of pin, one on tip of nose, the other on upper lip.

The woman sank rapidly and died of asthenia.

Post mortem eighteen hours after death. On tip of nose is a small gangrenous spot and others over the abdomen. Lungs are crepitant except the apex of the left lung, which is infiltrated with a disseminated, apparently non-tubercular infiltration. There is a similar deposit in the apex of the lower left lobe, but none in the

right lung. The bronchial glands are not enlarged. The thymus is not enlarged and is apparently healthy.

The heart is normal and both cavities are filled with huge chicken-fat clots.

The spleen is rather soft, measures 6 x 4½ x 2 inches and of a dull purplish color.

The liver extends far below the edge of the ribs, but weighs only four and a half pounds. The apparent enlargement is due to an extension of the right lobe, the gall-bladder being seen in the middle of this lobe instead of the edge. The gall-bladder is empty. The portal vein contains a large white clot. Along the line of the ileum the Peyer patches are much enlarged, with hard, raised, everted edges, and the centre ulcerated.

Both kidneys are large, pale, and the seat of a parenchymatous inflammation.

The bone-marrow is *normal in color and consistency.* This case is remarkable both from a clinical and gross pathological view. No one seeing the case with a continued fever for two weeks, distended abdomen, diarrhea, and nose-bleed would have considered the case anything but one of typhoid fever. It was only when the remarkably rapid anemia developed that a blood-count was made which showed the real nature of the case, and this was done rather as a routine matter than from a thought of any blood dyscrasia.

Pathologically the gross specimens are rather those of typhoid than leukemia, though the ulcers are not exactly characteristic of typhoid. However, microscopically there is leukemic infiltration.

DR. A. E. TAYLOR.

The blood of this case presents a rather anomalous picture. Dr. Fussell has described the clinical blood-count. The red corpuscles were all rather pale, and were moderately irregular in form; a few red cells contained nuclei. The differential count of the leucocytes gave the following result:

Neutrophilic polynuclear leucocytes, 15 per cent.; large mononuclear and transitional forms, 71 per cent.; lymphocytes, 14 per cent.

The polynuclear leucocytes were very poor in neutrophilic granulations. Cells with oxyphilic granulations were very scarce, not over 1 : 1000 leucocytes, nor were any basophilic granulations (either small or large) to be found. About 93 per cent. of the mononuclear and transitional forms (which constituted 71 per cent. of the total) were entirely devoid of all granulations. They consisted of pale cells, whose nuclei were proportionately large and often situated near

the margins of the cells. The chromatin fibres of these nuclei were sparse and diffuse. In size they varied from the dimensions of a red cell up to 20 x 22 μ. Many of them looked very similar to the leucocytes lately described by Fränkel in infantile leucemia. Many of the nuclei presented evidences of degeneration. The remaining mononuclear cells contained sparse neutrophilic granulations, and thus correspond to the myelocytes of Ehrlich. Many of them were as small as lymphocytes, and their general appearance was not such as to convince one that they had come from the marrow. I have under the microscope specimens of the blood stained with eosin-hematoxylon, methyl-green, acid-fuchsin, orange green, and a basophilic mixture of neutral red and methylene-blue. I have also numerous sections of the liver, spleen, kidneys, lymph-glands, and of one of the intestinal ulcers which Dr. Fussell has described.

The organs present a moderate leucocytic infiltration, the cells corresponding to those described in the circulating blood and as devoid of granulations. The base of the ulcer is formed by a leucocytic infiltration which extends beyond the limits of the Peyer patch. I have stained many sections for bacteria, but beyond the area of superficial necrosis none were found, and a similar search in the enlarged mesenteric glands and spleen was likewise negative. The parenchyma of the liver and kidneys was moderately degenerated. The bone-marrow (ribs, tibia, sternum) was macroscopically normal. I regret that the decalcification has proceeded so slowly that I am not able to present a microscopic report of them to-night.

PRIMARY CARCINOMA OF STOMACH; SECONDARY CARCINOMA OF LIVER.

BY M. H. FUSSELL, M.D.

Henry S., aged 64 years; married; has one child. The man was seen by the reporter three days before death.

Patient was absolutely never ill until three years ago, when he began to have attacks of vomiting. Vomiting has persisted more or less continuously ever since.

Three years ago he began to lose flesh; he now has lost about fifty pounds. Never any blood in vomit. For past few months abdomen has gradually increased in size, has become anemic; feet have swollen.

On examination I found the liver much increased in size, the edge extending about one hand's breadth below margin of ribs, and from the fourth rib above. The exposed edge entirely fills the

epigastrium and is markedly nodular. The belly is filled with liquid. Patient extremely emaciated, and is the typical picture of hepatic disease, with small chest and head, enormously dilated abdomen, and swollen legs.

On the second day the abdomen was tapped and two quarts of almost pure blood removed. The tapping was stopped on account of the character of the liquid.

Post mortem six hours after death. Body much emaciated; height, five feet eight inches; hair and beard gray; abdomen distended; two quarts of bloody fluid removed from abdomen of the same character as that removed by paracentesis; subcutaneous fat almost entirely disappeared; muscles very thin. Lungs almost meet in median line; no new growths in the lungs. In the left pleural sac is a half-pint of purulent liquid. The base of right lung the seat of a pneumonic consolidation. Pericardium normal. Heart small; valves normal; right side contains a large chicken-fat clot. The liver extends four inches below edge of ribs and fills the epigastrium. The omentum is free. The peritoneum is shiny and in normal condition. The mesentery, however, is covered on only one side with a diffuse new growth. The appendix is adherent throughout its entire length. Spleen normal. Right kidney almost entirely destroyed by interstitial nephritis. Left kidney also much contracted. Liver, stomach, and duodenum removed *en masse* for careful examination. Liver with the stomach weighs six and a half pounds. The mucous membrane of the stomach is puckered. The pylorus is occupied by a rodent ulcer surrounding it in its entire extent. The ulceration is so deep that in one joint it has eaten through the stomach wall and communicates with a cavity formed by adhesions about the flexure of the duodenum. In the flexure of the duodenum is a mass half the size of a fist which on dissection is found to consist of vessels, pancreas, and inflammatory material, but no new growth. Pancreas is normal. The hepatic and splenic veins are greatly dilated, the former being about one inch in diameter when inflated. These veins are involved in the mass above described and contain a large quantity of broken-down clots. The pancreatic and hepatic ducts are patulous. The liver is enormously enlarged and is the seat of numerous large and small cancerous masses. Many of these new growths have broken down and are filled with diffluent material, giving the organ the appearance of a multilocular abscess. On the anterior edge of the right lobe is a large fungous mass which has ulcerated and is the seat of the hemorrhage causing the ascitic fluid.

ALUMNI NOTES.

Dr. H. M. Christian (Class of '82) has been elected Adjunct Professor of Genito-Urinary Diseases in the Philadelphia Polyclinic.

Dr. R. I. Haines (Class of '90) has been appointed one of the Medical Directors of the Building and Loan Life Insurance Co. of Camden, N. J.

The Sixth Annual Meeting of the American Electro-Therapeutic Association will be held on Tuesday and Wednesday, September 29 and 30, and Thursday, October 1, 1896, in Allston Hall, the Studio Building, on Clarendon Street, near St. James Avenue, Boston, Mass.

The Brunswick Hotel, corner Boylston and Clarendon Streets, will be the head-quarters of the Association during the meeting. Terms reduced to $4 per day, for Fellows and their friends. The Copley Square Hotel, corner Exeter Street and Huntington Avenue, terms reduced to $3 per day, is also located in close proximity. For rooms, etc., apply either to the proprietors, or to Dr. W. H. White, No. 222 Marlborough Street, Boston, Mass., who, as the vice-chairman of the Committee of Arrangements, will reserve rooms.

Professor A. E. Dolbear, Tufts' College, Massachusetts, is the chairman of the Committee of Arrangements.

AMERICAN DERMATOLOGICAL ASSOCIATION.

The meeting will be held at the Hot Springs of Virginia, September 8, 9, and 10, 1896.

Everything will be done to make the meeting a success, and several papers on interesting subjects have been already promised.

Dr. White will open a general discussion on the subject, "What effect do diet and alcohol have upon the causation and course of the eczematous affections and psoriasis."

Charles W. Allen, *Secretary.*

EDITORIAL.

THE PHYSIOLOGICAL FACTORS INVOLVED IN THE CAUSATION OF DROPSY.

Although dropsy is one of the commonest of the clinical manifestations of disease, and the various visceral lesions capable of inducing it are, as a rule, readily recognizable, it must be admitted that we are far from possessing an exact knowledge of the physiological factors involved in its causation. Even in the simplest form of dropsy, that resulting from local venous obstruction, the increased intracapillary pressure behind the obstruction must be regarded as only one of the factors responsible for the accumulation of lymph in the connective-tissue spaces of the body. Starling, in the Harris and Gale Lectures, delivered before the Royal College of Surgeons of England (*Lancet*, May 9, 16, and 23, 1896), has made an interesting contribution to the subject. In the first lecture the subject of lymph-production is considered. Of the two hypotheses: first, that lymph is a filtrate under pressure from the plasma, and, secondly, that it is a secretion of the cells forming the capillary walls, the author favors the former, which has also been ably supported by Hales, Hewson, and particularly by Ludwig. According to this view the amount of lymph produced in a given part must be proportional to the difference between the pressure in the capillaries and the pressure in the extravascular spaces. Ludwig found by actual experiment that an increased flow of lymph was obtained by increasing the capillary pressure. Heidenhain, however, as the result of a long series of researches on the various conditions in which the lymph-flow from the thoracic duct might be increased or diminished, concludes that the filtration doctrine is erroneous, and that we must assume that the cells forming the walls of the capillaries take an active part in lymph-formation. Starling is convinced, after a careful examination of Heidenhain's experiments, that, so far from overthrowing the filtration hypothesis, they furnish the strongest arguments which have yet been adduced in its favor.

The second lecture is devoted to the subject of the absorption of fluids from the connective-tissue spaces. Both ways of absorption are recognized,—viz., absorption by the lymphatics and absorption

by the blood-vessels. In the third lecture the factors involved in the causation of dropsy are dwelt upon. The author has drawn up the following table of the various changes in the normal conditions of the body which will bring about, or help to bring about, an abnormal distention of the connective-tissue spaces with lymph. The changes which are the most important for the production of dropsy are italicized:

FACTORS INVOLVED IN THE CAUSATION OF DROPSY.

I.—Factors causing increased transudation:
- *A. Increased intracapillary pressure:*
  - *a. Venous obstruction.*
  - *b.* Vaso-dilatation.
  - *c.* Plethora.
- *B.* Increased permeability of vessel wall:
  - *a. Local injury* by mechanical irritants.
  - " " " thermal "
  - " " " chemical "
  - *b. Malnutrition.*
  - *c. General injury by circulating poisons* (*?*).
- *C.* Watery condition of blood (hydremia).

II.—Factors causing *diminished absorption:*
- *A.* By lymphatics:
  - *a.* Paralysis of limbs.
  - *b.* Obstruction of lymphatic trunks.
- *B.* By veins:
  - *a.* Venous obstruction.
  - *b.* Watery condition of blood.
  - *c.* Concentrated transudations.

The form of dropsy which is simplest in its pathology is that which is due to venous obstruction. "It would be natural," says the author, "to ascribe this dropsy to the increased lymph-production consequent on the raised intracapillary pressure behind the obstruction." On investigating the subject experimentally, however, one finds that the causation is not quite so simple. Here, as in nearly all other cases, more than one factor is at work. It is a well-known fact that although obstruction of the femoral vein by a thrombus will give rise to pronounced edema of the leg, yet ligature of the femoral vein in a healthy man may have no ill effects whatever. Ligature of the femoral vein in dogs rarely produces edema of the legs. If, however, the intracapillary pressure be still further increased, edema results. Thus, Paschutin showed that ligature of all the venous trunks of the dog's leg caused edema of the foot and ankle. Ranvier also produced dropsy after ligating the inferior vena cava by dividing the sciatic nerve so as to cause dilatation of the arterioles on that side.

Cohnheim demonstrated that edema resulted when the veins of the leg were injected with plaster of Paris. Such an enormous rise of capillary pressure as is produced in the latter experiment probably never occurs under clinical conditions, and the dropsy observed in man is doubtless due to the simultaneous working of two or more factors. Two questions naturally present themselves: Why, in a healthy animal with a moderate venous obstruction, there is no edema? and, secondly, what are the subsidiary factors which, in conjunction with obstruction, bring about edema. The solution of these problems is contained in the following paragraph: "In considering the first point, it is essential to remember that in the case of edema of the limbs we are dealing with the most impermeable capillaries in the body, so that under normal conditions a considerable capillary pressure is required to separate the lymph from the blood, and lymph so separated has lost the greater part of its proteid. I have already shown how, in consequence of this difference in composition between plasma and lymph, there is an accurate balance between the force tending to produce exudation—*i.e.*, the capillary pressure—and the force tending to produce absorption,—*i.e.*, the difference of osmotic pressure between blood-plasma and lymph. Now, if in a normal animal a vein be obstructed, the first effect is a rise of capillary pressure and increased exudation. Since, however, in the affected capillaries and veins the onward flow of blood is checked, the increased exudation must be at the expense of an increased concentration of the blood-plasma. This increase in concentration must cause an increase in the difference between the osmotic pressures of plasma and lymph and the absorbing force,—*i.e.*, the osmotic pressure of the plasma will rise until it is equal to the driving out force,—*i.e.*, the capillary pressure. In a normal dog with normal vessels the processes tending to cause edema will be pulled up almost as soon as they have started, and no edema will result from moderate venous congestion. It is easy now to see how we might cause edema by venous congestion. In the normal animal the factor which restrains the appearance of edema is the impermeability of the vessel wall, since it is this impermeability which maintains the difference in osmotic pressure between blood and lymph. If, therefore, we can increase the permeability in any way, the balance of processes will be lost, exudations will predominate over absorption, and edema will result. . . . To sum up, we may say that edema can never be brought about in the limbs by a moderate rise of venous pressure, provided that the capillaries retain their normal impermeability. Edema will result as soon as the permeability of the vessels is increased. The injury leading to this increase in permeability may be brought about in any of the following ways:

(1) long-continued venous congestion (asphyxia of cells); (2) an excessive rise of intracapillary pressure breaking down the normal resistance of the cells; and (3) malnutrition due to an impoverished state of the blood."

A more frequent cause of edema than local venous obstruction is uncompensated heart-disease. In these cases the conditions are more complicated than in the class just considered. Failure of the heart causes a rise of pressure in the *vena cava* and in the large veins of the neck, but a fall of pressure in the portal veins, in the peripheral veins of the legs, as well as in the arteries. If, therefore, failure of the heart's action brings about a fall of pressure in the capillaries of the intestines and peripheral parts of the body, how is it that in morbus cordis there are such distinct signs of raised pressure in the peripheral parts of the body? The clue to this difficulty, the author believes, is to be found in the fact that all cases of uncompensated cardiac lesions are associated with hydremic plethora. Stinzing and Gumprecht have shown that such an association actually exists "We may sum up," says Starling, "the sequence of events which ensue on failure of compensation as follows: Stage 1.—Heart-pump failure; fall of arterial pressure; rise of pressure in the venous trunks near the heart; fall of capillary pressures in the peripheral parts of the body, in the kidneys, and in the intestine; and absorption of fluid by blood-vessels from intestines and peripheral tissues. Stage 2.—Continued absorption from alimentary canal with diminished excretion from the kidneys, and production of hydremic plethora with rise of mean systemic pressure. This leads to Stage 3,—rise of capillary pressure in all dependent parts of the body, capillaries injured by malnutrition, and excessive transudation leading to dropsy. Stage 4.—The continued hydremic plethora leads to ever-increasing, overfilling of the heart cavities, and to ultimate failure of the already incompetent heart."

There is another class of edemas in which the primary change affects not the intracapillary pressure, but the vessel wall. Cohnheim has classed all edemas in which the primary affection is that of the vessel walls as inflammatory edemas. The capillary pressure remaining stationary, the increased permeability allows of a largely increased exudation,—there is increased lymph-production. The lymph, however, contains more proteid than normal, so that the difference of osmotic pressure between it and the circulating plasma is diminished, thereby causing a diminution of the absorbing force. In all cases of inflammatory edema two factors are at work,—increased production and diminished absorption. The alteration in the vessel wall may be brought about in one of two ways,—the action of injuri-

ous agents on the vessels, or by poisoning of the blood-stream. Very little beyond what Cohnheim taught is known of the origin of that form of dropsy which results from Bright's disease. Cohnheim placed it in the category of inflammatory dropsies. And this classification is generally accepted, since there is no evidence of mechanical cause to account for it. The view that the change in the vascular endothelium in Bright's disease, which leads to its increased permeability, may be due to the circulation in the blood of toxic agents is favored, at least, by one experiment performed by Starling, in which he injected blood-serum from a uremic patient into a dog and obtained marked quickening of the lymph-flow from the thoracic duct.

THE EXTENSION OF THE PRACTICAL APPLICATION OF THE RÖNTGEN RAYS.

In the March issue of the MAGAZINE we briefly described the practical application of the discovery of Professor Röntgen as far as it had been developed at that time. Since our report the use of the new radiation has been greatly extended. The June number of the MAGAZINE contains the reproduction of a skiagraph showing a "jackstone" in the esophagus of a child, 2½ years of age. This case came under the care of Dr. J. William White, at the University Hospital, and is, we believe, the first instance in which a foreign body has been detected in the trunk of the body by this means. A glance at the plate impresses the immense value of this new aid in diagnosis.

The August number of the *American Journal of the Medical Sciences* contains an article on the "Practical Application of the Röntgen Rays in Surgery," illustrated by a number of excellent plates representing interesting surgical conditions that could not be so lucidly portrayed in any other manner.

The application of the new ray in medicine up to the present time has been much more restricted. The shadows of the heart and liver are well seen, and the outlines of other organs are faintly perceptible. It is by no means to be considered, however, that the full utility of the radiation has as yet been discovered, and both surgeons and physicians are confidently looking forward to developments that will lend still more general assistance in diagnosis.

The construction of the fluoroscope is being perfected, so that, at present, the necessary information may be obtained without the trouble and delay of making a skiagraph.

The Laboratory of Clinical Medicine of the University Hospital is already equipped with a Röntgen plant, and by October 1 another complete plant will be installed in the Department of Clinical Surgery.

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.,

ASSISTED BY

M. HOWARD FUSSELL, M.D., AND A. O. J. KELLY, M.D.

Hepatalgia.

Pariser (XIV Kongress für innere Medicin in Wiesbaden, April 8–11, 1896, *Centralblatt für innere Medicin*, No. 17, 1896) in the last three years has observed seven cases of neuralgia of the liver. Neuralgia of the liver is not such a rare disease. Being unknown, it has been overlooked. It is usually confused with gall-stones; the author saw one case of hepatalgia operated upon. In but few particulars is neuralgia of the liver to be distinguished from biliary colic. It is asserted that in hepatalgia the greatest pain is sharply localized to the liver, whereas in gall-stone colic the pain is very frequently more intense in its radiations. The attacks are of varying duration, from a few minutes to four hours and more. The cessation of the attack can, sometimes in hepatalgia as in gall-stone colic, be ushered in by vomiting, occasionally icterus may occur. Hepatalgia is particularly characterized by the regularity of the repetition of the attacks, by its affecting especially female patients, above all by its association with the menses. It belongs to the visceral neuroses, and has an hysterical or neurasthenic basis. The therapy must be antineuresthenic, roborant, and demands particular attention to, and if possible, removal of factors inducing attacks. Of nervines, cannabis indica is especially recommended.

A Rapid and Convenient Method of Preparing Malarial Blood Films.

Manson (*British Medical Journal*, July 18, 1896). As many microscopic slips as are likely to be required are cleansed with ether and placed in rows on a table near the patient. Three or four oblong strips of very fine, clean tissue-paper, one and a half inches by five-eighths of an inch, are also prepared. The patient's finger is cleansed and pricked in the usual way. A droplet of blood is then taken up by touching it with one of the papers about one-half inch from the end of the paper. The charged surface of the paper is then placed upon a glass slip rather towards one end. In a second or two the blood will have run out in a thin film between the paper and slip. When this has taken place, the paper is drawn across the slip. The same paper, without recharging, is placed in a similar way on a second, third, and fourth slip. When exhausted, the paper may be recharged. The slides are then stored away to await convenience. Before proceeding to stain, the blood is fixed by dropping a little absolute alcohol on the films. The slides are

then dried and stained with borax (5 per cent.), methylene blue (½ per cent.), a few drops of the solution being applied for about a half minute. After drying the cover glasses xylol-balsam is applied. If crescents are to be sought for, a good plan is to make the films fairly thick, to fix with alcohol, and then to wash out the hemoglobin with very weak acetic acid,—two or three drops to an ounce of water. The now colorless film is washed with water, stained with methylene blue, and mounted in xylol-balsam in the usual way. The field not being obscured with blood-corpuscles, the large amount of blood which this method of preparation enables us to pass rapidly in review greatly favors the quick finding of any crescents that may be present. The same method of preparing blood films is equally applicable for the demonstration of other blood parasites.

A Case of Osteomalacia treated with much Benefit by Bone-Marrow.

Allison (*Edinburgh Medical Journal*, May, 1896) reports a case in which the diagnosis of osteomalacia rested upon a history of insidious onset, with weakness and lassitude in an individual previously well-formed and healthy, followed by rheumatoid pains and softening of the bones of the lower limbs, which gave way below the knees, and afterwards failed to support the weight of the body, this being succeeded by softening of the bones of the trunk, and progressive contortion of the framework generally. The upper extremities later became involved, but the outlines of the bones of the head and face did not become materially altered. The pelvis was characteristic in that the ischial tuberosities approximated; but this was allowed, not so much by the pubes becoming rostrate, as by partial dislocation backward of the sacrum. Phosphates in excess were present in the urine. The disease commenced when the patient (a female) was 13 years of age. At the time of the report she was 43 years of age, and had thus been the recipient of medical charity for thirty years. The treatment consisted in the administration of glycerin extract of bone-marrow in doses of a half to one and a half drachms three times a day. All other treatment was at first suspended. Massage and weights of the feet were added later. Visible improvement was seen at the end of the first week of treatment, the appearance of the patient brightening considerably, and much more freedom was noticeable in the movements of the head, while expectoration and deglutition became more easy. Deformity also commenced markedly and progressively to disappear, the parts last affected, generally speaking, improving first,—the most striking improvement being shown in the limbs. In the first week the bones of the extremities commenced, and have since continued to rotate into place, the rigid articulations "going off in cracks" audible to the patient and to any others in the room, and causing sharp pain, which sometimes passed off quickly, and sometimes lasted for a considerable time. Latterly, most movements towards the normal have become practically painless. The case was reported at the end of seven months' treatment by bone-marrow, during all of which time satisfactory progress characterized the case, deformity and pains gradually disappearing. Movement returned to joints, where formerly rigidity had existed, so much so that the patient was enabled to dress herself and sit up in a chair. During the five years previous to the institution of the bone marrow treatment the patient had lain almost helpless on her back. There are many interesting points in connection with the case, among which may be mentioned the striking effects of the treatment, and the tendency of the skeleton under its influence to revert, without the aid of the muscular system, to the normal type.

Pyemia Sequential to Otitis Media Suppurativa Acuta after Diphtheria.

Rimini (*Berliner klinische Wochenschrift*, No. 27, 1896) reports the case of a child, aged 3½ years, admitted to the hospital on the sixth day of a light attack of diphtheria. There was a membranous deposit on both tonsils; the larynx was free; there was albumin in the urine. The exudate disappeared three days after the injection of Behring's No. 1 antitoxine. On the tenth day after the injection there occurred sudden fever and a pseudo-scarlatinal erythema. Two days later there again occurred sudden fever and pain in the right ear. Two days later pain in the left ear followed by a copious purulent discharge. Four days later, painful swelling of the left knee-joint and left upper arm. Death ensued shortly after, under coma. At the necropsy there was found a quantity of pus in the left knee-joint, and a serous infiltration of the left upper arm. Microscopic examination revealed cocci. The dura mater was normal. The external auditory meatus, the middle ear, and antrum of both sides were filled with thick pus. On the right side there was no perforation of the tympanic membrane, but there was on the left. The case was one of pyemia sequential to acute suppurative middle-ear disease, and is interesting because of the rapid occurrence of pyemic symptoms and development of acute disease of the temporal bone. The virulence of the infective agent is manifested by the total destruction within a few days of the left tympanic membrane.

Disturbances of Sensibility in Locomotor Ataxia.

Lähr (*Archiv für Psychiatrie*, Vol. xxvii, Part 3) details the results of a very careful and painstaking investigation into the disturbances of sensibility found in cases of locomotor ataxia, of which the following are his conclusions:

Among the disturbances of sensibility in locomotor ataxia, hyperesthesia of the trunk seems to appear regularly and usually early. This consists for a long time only in an over-sensitiveness to slight touches, while in opposition thereto there is usually observed in the beginning on the legs a diminution of the pain and posture senses. This latter appears to precede somewhat in development the trunk hyperesthesia, which in the beginning corresponds usually to the area of distribution of the middle thoracic nerves. Its subsequent development ensues symmetrically in horizontally encircling zones above and below, and spreads out over the arms in a characteristic manner. There occurs implication of the area of distribution of the lumbar and sacral nerves, in which, between hyperesthetic, there are found normal zones. These may also be demonstrated for a long time in the lower thoracic area. The distribution of this tactile anesthesia is characteristic; it corresponds not to the area of distribution of the peripheral nerves, but to that of the spinal roots or their intramedullary fibres, in which respect it simulates disturbances of sensibility following lesions of the spinal cord and the posterior roots. There is hereby given some clinical support to the lately propounded ideas that the tabetic degeneration affects the intramedullary fibres of certain root areas in various levels of the cord. There may, of course, also occur various sorts of other anesthesias in consequence of peripheral nerve-disease. On the periphery of hyperesthetic and between hyperesthetic zones there occurs usually a marked hyperalgesia, especially for cold. The reflex irritability of the skin is here very active, while in the hyperesthetic areas it is very much diminished or totally abolished. Symptoms of sensory irritation are a very frequent, though not constant, accompaniment of the anesthesia. A marked ulnar pressure analgesia with other disturbances of sensation in the ulnar region appears to be the rule in tabes dorsalis. These tabetic anesthesias, as clinical symptoms of disease of certain spinal root areas, are adapted to permit of conclusions concerning their peripheral cutaneous distribution.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

GWILYM G. DAVIS, M.D., M.R.C.S., AND ELLWOOD R. KIRBY, M.D.

Treatment of Artificial Anus by operating directly through the Peritoneum.

Gangolphe (*Revue de Chirurgie*, 1896, p. 295) advocates opening the peritoneum at once in operating for artificial anus instead of having recourse to the enterotome of Dupuytren. In favor of the method he claims,—

(1) It is rapid; the surgeon is not delayed by fear of wounding any important organs or tissues.

(2) It is sure; the finger introduced into the abdominal cavity explores the parts in the neighborhood of the opening; it also guides the scissors in loosening the intestines at a distance from it.

(3) It permits the withdrawal of the affected intestines outside the abdomen, where they can be protected with gauze while being operated on. The chances of infection are diminished while the manipulations are facilitated.

(4) It is possible in all cases, while operation by other methods is not always possible.

The Mechanics and Treatment of the Broken-Down Foot.

Lovett (*New York Medical Journal*, June 20, 1896) discusses this condition. The article is well illustrated. The foot is designated as being "pronated." By this he means one affected with some eversion of the sole with abduction of the forward part of the foot. A certain degree of pronation is normal, beyond that it is abnormal. Excessive pronation is a necessary anatomical accompaniment of flat foot. It also accompanies contracted foot and can exist without any recognized change in the arch of the foot. In treating the condition a special boot is advised with the object of holding the forward part of the foot adducted. The essentials of this boot are,—

(1) The front part should be strongly adducted.

(2) The front part, opposite the metatarso-phalangeal joint, should be as wide in the sole as the weight-bearing foot.

(3) The shank should be stiffer and higher than usual and not cut away too much inside. In other words, it should afford real support to the arch of the foot.

(4) The inner border of the shoe should be as straight as the condition of the great toe will permit, in order to allow the great toe freedom to support the inner border of the foot in its proper position. The inner border of the shoe is also raised an eighth or quarter of an inch.

If the feet become painful he puts a felt pad under the arch of the foot, have the patient douche the feet in hot and cold water, and bandage them with a flannel bandage each night. In more severe cases he either bandages the foot with adhesive plaster after the manner of Dr. Gibney, or orders a metal plate. The patients are directed to walk on tip-toe and to practise adduction of the forward part of the foot against resistance.

Ligation of the Vasa Deferentia for Hypertrophy of the Prostate.

F. Tilden Brown (*Annals of Surgery*, June, 1896, p. 737) reported to the New York Surgical Society a case in which he had ligated both vasa deferentia in a man 70 years of age. The prostate, as explored by the rectum, was hard and about the size of a billiard-ball.

The vasa deferentia were separated to the extent of an inch from the cord and double ligatures of fine silk were placed a quarter of an inch apart on each vas. This latter was not severed. At the end of seven days it was reported that he had passed urine by drops to the amount of about two drachms. Three days later he passed two ounces, and from that time the amount passed voluntarily increased while that drawn by catheter decreased. On his discharge three ounces were drawn by catheter and thirty ounces were passed by the urethra. The urine became clear and free from albumin. There has been no atrophy of the testicles since the operation, and the prostate is softer than it was and smaller. It is of the size of a hen's egg, the left lobe being about three times as large as the right.

Iliac Ligation for Prostatic Hypertrophy.

Meyer (*Annals of Surgery*, June, 1896) discusses Bier's operation of ligation of the internal iliac arteries for prostatic hypertrophy. He reports three cases. The results of these cases he says were far from being brilliant,—one was only partially improved; one died of unknown cause seven days after the operation, and the third had not been improved at all. The first case was a complicated one from the beginning; secondary hemorrhage occurred, necessitating ligation of the common iliac artery. The death in the second case may have been due to narcosis or the catheterization before the operation rather than to the latter itself. In the third case the artery on one side only was successfully tied, the other being too calcareous.

The author claims the operation is not a difficult one if Trendelenburg's position is used. [In one case an angle of "about seventy-five degrees was employed." Ed.] A single silk ligature is advised with complete closure of the wound in layers.

The operation should be done extraperitoneally. He believes the operation to be indicated only in patients below the fiftieth to sixtieth year with absolute retention of urine due to the hypertrophied prostate, who are tired of catheter-life, but who refuse to lose one or both testicle, and also are unwilling to become sterile, in spite of the probability of an otherwise undisturbed power of sexual intercourse.

Ligation of the External Carotid Artery in Operations on the Jaws, etc.

Nicolson (*Journal of the American Medical Association*, June 6, 1896) advises ligation of the external carotid artery in cases of exsection of the jaws and in inoperable diseases of the same. After an experience in four operations for the removal of the upper jaw and one of the lower, he submits the following conclusions:

(1) It absolutely prevents danger from hemorrhage, which, though not usually great, has been known to prove fatal in the hands of the best operators.

(2) Shock is thus largely prevented.

(3) The time of the combined operations is in most cases no greater, if not less, than that required for extirpation alone.

(4) The return of the growth when malignant is materially lessened, if it may not be prevented.

In operating, the incision should be from two to four inches long, according to the depth of the neck, though it is better to begin with the former and extend it if necessary. With a thin neck two inches is ample. The centre of this incision should be about opposite the upper border of the thyroid cartilage. After the skin and deep fascia have been passed, the work is largely done with the handle of the scalpel and the finger. In this way the vessel can be rapidly approached without danger. The chief obstacle is the crossing of the vessel by the facial, lingual, and superior thyroid veins, their combined trunks making in some cases an enormous vessel. These can be pulled aside when the division is at the normal point, but sometimes they have to be cut and tied.

The external carotid is recognized by its branches.

The tendency is to make the incision too high. The ligature was placed immediately in the bifurcation and below the superior thyroid branch. In introducing the needle it should be remembered that the two trunks are bound together by a tough areolar tissue. The author used catgut, making the Ballance and Edmonds knot. The wound was closed with iodoform and collodion.

Operative Treatment of Hallux Valgus.

Delbet (*Revue de Chirurgie*, 1896, p. 329) operates as follows for hallux valgus: After complete excision of the bursa, and having exposed the abnormal projection of the head of the metatarsal bone, he resects with gouge and mallet all the projecting part. Finding that reposition of the toe was prevented by the extensor tendon, he displaced it inward and fixed it to the metatarsal bone by a fibro-periosteal sheath. The same procedure was carried out on the toe of the opposite foot. The deformity remained corrected and the patient experienced no difficulty in walking.

In discussing the operation, Kirmisson stated that the retraction of the tendon is secondary, and fixation of it will be useless unless preceded by removing the projecting part of the metatarsal bone.

Poirier thought that Delbet attributed too much importance to the contraction of the tendon.

Routier operated on a danseuse by opening the articulation and removing the projecting bone without troubling himself about the tendons; the result was very good.

Reynier, from an experience of fifteen or twenty operative cases, believed a distinction should be made according to age. In the young the retraction of the tendon may be primary and of great importance. Here division of it is curative. In adults the retraction is secondary to an arthritis. In these he prefers a cuneiform osteotomy. Opening of the articulation will always lead to ankylosis.

Marchand obtained excellent results by resecting the bony projection without bothering about the tendon. Operations are unnecessary in children.

Felizet likewise insisted on separating the affection in children from that in adults. In the latter the disease is arthritic, but in the former it resembles genu valgum. Simple *redressement* is sufficient.

Schwartz sometimes did a simple osteotomy of the metatarsal bone, and sometimes a resection. He paid no attention to the tendons.

Monod thought that the degree of deviation is much more important than the age of the patient. He always made an oblique section of the head of the metatarsal bone and had very good results.

THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D., AND ARTHUR A. STEVENS, M.D.

Apocynum Cannabinum.

Grozdinsky (*Vratch*, No. 19, 1896, and *British Medical Journal*) has tried fluid extract of apocynum cannabinum (fifteen drops three times a day) in seven cases of mitral and aortic insufficiency with disturbed compensation. Considerable improvement was invariably noticed within two or three days from the beginning of the treatment. The cardiac impulse grew stronger, the pulse became more regular, fuller, and slower; its frequency in some instances decreasing from 130 or 120 to 56, or even 48 per minute in 48 hours. The blood-pressure rose; cyanosis and pulsation of the cervical vessels vanished, the area of cardiac dulness decreased; the daily quantity of urine increased (in one case it rose from 450 cubic centimetres to 2800 cubic centimetres); the body-weight fell, the diminution varying from thirteen to twenty-one Russian pounds.

Like other Russian observers, the author never saw any unpleasant accessory effects from the drug.

The Treatment of Exophthalmic Goitre.

At a meeting of the New York Pathological Society, held on April 7, 1896, Dr. N. Allen Starr spoke on the nature and treatment of exophthalmic goitre, in which he urged the theory that this disease was due to hyperactivity of the thyroid gland. It was well known, the author stated, that a large proportion of cases of Graves's disease recover, indicating that the disturbance was functional. A reduction of the secretion of the thyroid gland to a normal amount would result in a cure. The various remedies recommended for this disease caused a diminished activity of the gland. Thus, belladonna was one of the remedies, and it was quite probable that its beneficial action was due to its power to check glandular secretion. It was somewhat difficult to explain the well-known favorable action of aconite and veratrum viride, although it is possible that by their depressing action on the heart they materially diminished the blood-supply of the thyroid gland. The glycero-phosphate of sodium in doses of twenty grains, three times a day, he found very useful in a number of cases. Attempts had been made to treat cases of exophthalmic goitre by thyroid and thymus extracts, but the consensus of opinion at the present time seemed to be that this treatment was not only of no value, but was decidedly harmful.

The most rational treatment would appear to be surgical removal of the thyroid gland, if the theory advocated was correct, but as the disease showed a tendency to spontaneous recovery, operation should not be resorted to except in long-standing cases or those in which the symptoms were very urgent. Out of 190 recorded cases of exophthalmic goitre operated upon, 23 died within two or three days after the operation; 74 were cured; 45 were reported as improved or cured; 3 as not improved; and the final result was uncertain in 74. The deaths were not due to sepsis, but indicated a sudden poisoning of the entire system by an absorption of the thyroid juice, probably from handling the gland during the operation.

Lactophenin.

Senfft (*Wiener medicinische Presse*, No. 50, 1896) has employed lactophenin extensively in the diseases of children. In pneumonia, typhoid fever, diphtheria, and bronchitis it quickly lowers the temperature without disturbing the stomach or depressing the circulation. On account of these advantages, he has substituted it for other antipyretics for children. To a child of one year he gives three-fourths of a grain.

Serum Treatment of Diphtheria in Cracow.

Dr. Stapa (*Lancet*, May 9, 1896) has presented to the Cracow Medical Society a report of the results obtained by the serum treatment of diphtheria in the Children's Hospital of that city. During the year 1895 the number of children subjected to it was 258. Of these the mortality was 22 per cent. This compares very favorably with the mortality in the previous ten years, which was as high as 56.3 per cent., there being 709 deaths out of a total of 1354 patients who were treated by other methods. Various serums were employed,—Behring's, Roux's, Aronson's, Buivid's, and Paltauf's. Laryngeal croup occurred in 165 cases, and a rash having the appearance of scarlet fever and lasting from two to sixteen days in fifty-eight cases. It was noticed that certain samples of serum always produced rash. No effect on the occurrence of albuminuria by the serum could be shown. There were seven cases of return of the disease after from ten to twenty days and three cases in which it returned after an interval of from two to three months.

The Effect of Erysipelas Toxines upon Malignant Growths.

Dr. L. A. Stimson, Dr. A. G. Gerster, and Dr. B. F. Curtis, at a recent meeting of the New York Surgical Society, submitted the following report upon the use of erysipelas toxines in the treatment of malignant disease:

"Both before and since our appointment as a committee, we have been able to observe, individually and together, a considerable number of cases treated by this means, and in no case have we found any amelioration which held out a prospect of ultimate cure. We have, on the contrary, observed in some cases that the rate of growth of the disease was much more rapid during the treatment. The treatment also imposes a very severe tax upon the strength of the patient, and apparently hastens the cachexia in most cases.

"We believe that in the instances of apparent cure or marked improvement the correctness of the diagnosis is open to doubt.

"We therefore submit:

"(1) That the danger to the patient from this treatment is great.

"(2) Moreover, that the alleged successes are so few and doubtful in character that the most that can be fairly alleged for the treatment by toxines is that it may offer a very slight chance of amelioration.

"(3) That valuable time has often been lost in operable cases by postponing operation for the sake of giving the method of treatment a trial.

"(4) Finally, and most important, that if the method is to be resorted to at all, it should be confined to the absolutely inoperable cases."

Thyroid Extract in Obesity.

Grawitz (*Deutsche medicinal Zeitung*, June 15, 1896) reports two cases of obesity in which he employed thyroid extract. In the first case, although the remedy was continued for only three days (fifteen grains daily), and the woman took milk, butter, white bread, and eggs freely, she lost three kilogrammes in weight. An increased excretion of nitrogenous matter was evident in this case, so that a decided loss of flesh could not fail to result. The fluid excretions were not increased, the urine did not contain albumin or sugar.

The other patient took fifteen grains of thyroid extract daily for three weeks, without any restriction of the diet, and she likewise lost three kilogrammes in weight. Her subjective condition was not affected, and the urine contained neither albumin nor sugar. A discontinuance of the treatment was soon followed by an increase of weight.

Guaiacum in the Treatment of Gout.

Garrod (*Lancet*, May 30, 1896), at a meeting of the Royal Medical and Chirurgical Society, read a paper upon the above subject. Numerous observations covering a period of many years led him to believe that he had been successful in establishing the following points in regard to the action of guaiacum:

(1) Guaiacum was innocuous, and might be taken for an indefinite period of time, and looked upon as a condiment rather than as a drug, as harmless as ginger or any other condiment.

(2) Guaiacum possessed a considerable power, but less than colchicum, in directly relieving patients suffering from gouty inflammation of any part; it might be given whenever there was but little fever.

(3) Guaiacum taken in the intervals of gouty attacks had a considerable power of averting their recurrence; in fact, it was a very powerful prophylactic.

(4) Guaiacum did not appear to lose its prophylactic power by long-continued use.

(5) There were a few persons who could not readily continue the use of guaiacum; for such cases there were other drugs whose action was in some respects similar as prophylactics,—perhaps serpentary was one of the most powerful of these.

Before attempting to explain the mode of action of guaiacum in the treatment of gout, he gave his view of the origin of uric acid in the animal economy; instead of supposing that it was formed in the system by the metabolism of the nitrogenized tissues, and then thrown out by the kidneys, he was of opinion that it was produced from urea and other nitrogenized bodies in the blood by the direct action of the kidney, and that when uric acid was contained in the blood this arose from the absorption from the kidney structures of the urate of ammonium, depending on the want of sufficient throwing-off powers from these tissues.

In the discussion which followed the reading of the paper, Dr. Murrell said that he could support Sir Alfred Garrod's conclusions as to the efficacy of guaiacum in chronic gout. He had used the drug during the last six years at the Westminster Hospital, not only for chronic gout, but for rheumatism, tonsillitis, and chronic bronchitis associated with the gouty taint. He preferred guaiacum resin in large doses,—namely, twenty grains three times a day, the resin being about four times the strength of guaiacum itself.

GYNECOLOGY.

UNDER THE CHARGE OF

CHARLES BINGHAM PENROSE, M.D.,

ASSISTED BY

H. D. BEYEA, M.D.

The Influence of Castration upon Metabolism.

Curatolo (*Gazette hebdomadaire de Médecine et de Chirurgie*, No. 23, 1896) concludes from his experimentation that as a result of bilateral oöphorectomy the oxidation of fat tissue is diminished, and because of this there is an accumulation of fat in the organism. He believes there is prepared in the ovary a secretion which favors the oxidation of fat and the combination of phosphorus in the organism.

The Intravenous Injection of Serum in the Septic Peritonitis which follows Operation.

Michoux (*Gazette hebdomadaire de Médecine et de Chirurgie*, No. 5, 1896), during the last three years has employed the intravenous injection of serum in twenty-five to thirty cases of septic peritonitis, obtaining very good results, even though the symptoms were advanced and severe; where there existed tympanites, small and rapid pulse, and subnormal temperature. Two of the cases are of particular interest. In a woman, 50 years of age, who had diabetes, he removed a large fibroid tumor by vaginal hysterectomy. On the evening of the second day, sepsis being feared, the iodoform gauze was removed from the vagina in order to establish better drainage. The next morning there was marked tympanites, the pulse 130, and the temperature 96.6° F. Thirty-eight ounces of serum were injected into the cephalic vein. After an hour the temperature rose to 97.5°, and then to 102° F., and then dropped to 98.6° F., where it remained. Serum was injected into the subcutaneous tissue five times afterwards. After four or five days the patient generally improved and she completely recovered.

In another patient, 33 years of age, he did vaginal hysterectomy for pyosalpinx, and on the third day she developed the symptoms of peritonitis. At first thirty-eight ounces and then forty-eight ounces of serum were injected into the veins of the arm. At the same time the vagina was thoroughly douched with salt solution. After two days the patient was better and recovered.

The serum used was that advised by Hayem, and when this could not be procured he employed boiled water, containing 105 to 150 grains of sea-salt to the quart. The quantity of serum used was usually thirty-two to forty-eight ounces, but in two cases eighty and ninety-six ounces.

In one case during the injection the patient had dyspnea, high fever, and vomiting. The injection was given slower or discontinued, and these symptoms immediately disappeared. The amount of urine was always very much increased. With this treatment he combines hypodermic injections of ether, caffeine, and alcohol. Monod, in seven patients with septic peritonitis, practised intravenous injections of serum, with the result that four died and three got well. The patients who died were for a time much benefited by the treatment.

Tubercular Peritonitis.

Abbe (*Medical News*, No. 5, 1896), in a very complete paper on this form of tubercular disease read before the American Surgical Association, on May 26, classifies the varieties from the stand-point of developmental changes caused by the bacillus. Therefore each case representing a stage in the life history of the bacillus and its pathogenic results. He also discusses the advantages of the present forms of treatment. The stages of tubercular peritonitis are thus divided into—

(1) An eruption of miliary tubercles on the surface of the peritoneum so acute that acute infectious diseases or even strangulated hernia have been suspected; or,

(2) An enormous accumulation of ascitic fluid, with rapid wasting, slight pain, and no fever,—here a slow deposition of tubercles, widely scattered over the peritoneum, has occurred.

(3) Persistent pain or tenderness of the abdomen, with moderate tympanitic distention and irregular areas of dulness, associated with slight afternoon temperature and loss of appetite or flesh; indicating diffuse tuberculosis of the peritoneal cavity without fluid, but with a varying amount of plastic exudate partially sealing its walls together; or,

(4) Wasting of the body with irregular tympanitic distention, fever, anorexia, and sweats, associated with huge cakes of matted lymph and omentum, or sacculated ascites or pus, which illustrates the latest steps of tubercular development; or,

(5) The mishaps incident to degeneration of caseating patches ulcerating into the bowel causing fistulæ or extravasations of feces into the peritoneum, or bowel obstruction by lymph adhesions.

(6) And, finally, a retrograde course in the life of the bacillus and its products may leave an abdominal cavity partly sealed by atrophied tubercular elements, which may give the patient years of comparative health.

He believes that the bacillus enters less often through the circulation than through perforation of the intestinal wall or transmit from the Fallopian tube. The cases most favorably reported, he says, are undoubtedly those where an acute or a subacute inflammation with ascites has been operated on simply by abdominal section, with evacuation and immediate closure. But that most operators have added to this the detergent effect of boiled water irrigation or the alterative action of natural salt solution, or the mild antiseptic action of boric acid, weak carbolic acid, mild bichloride of mercury solution, or camphor naphthol, or iodoform, powdered or in emulsion. That, also, most successful cases have been drained, either by a tube or iodoform wick, or a Mikulicz tamponnade, but that evacuation alone is apparently capable of curing, even though immediate suture of the abdomen is done. In the dry form the Germans believe the liberal use of iodoform in glycerin emulsion seems more than justified to affect the free bacilli. The treatment with camphor naphthol has been most striking, and has been advocated since 1894. It has given most satisfactory results. However, the greater number of cases have been treated without direct medication. He concludes that it is the imperative duty of the surgeon to *freely evacuate by incision* all fluid of a tubercular peritonitis. That in all probability additional perfection will be obtained by irrigation with normal salt solution. Where advanced tubercular deposits can be sponged over with camphor naphthol, it is probable some additional good will accrue. The cure in undoubted tubercular cases may be absolute, though remnants of disease are apt to be latent. The purulent form of tubercular peritonitis is amendable to the same treatment. As regards the general disseminated tuberculosis with peritonitis, we

must, he believes, regard as occasionally capable of cure. Patients in almost moribund condition with extensive ascites have been frequently restored to health. The treatment by puncture (trocar) must be dismissed as inadequate. The power of the peritoneum to suppress a widespread tuberculous infection cannot be doubted, and its mode of action is through reparative inflammation, embedding the bacilli, and forcing retrograde metamorphosis. Cure has frequently followed a second laparotomy when the ascites has reaccumulated, which is the exception.

As Regards Treatment with Animal Ovarian Preparations and Organ Therapy.

Stachow (*Monatschrift für Geburtshülfe und Gynäkology*, Band iv, Heft 1,) gives an abstract of the mode of experimentation and the results attained by Mainzer, Chrobak, Mond, Krauer, and Fisher as regards animal ovarian preparations and organ therapy.

Mainzer (*Deutsche medicinische Wochenschrift*, No. 12, 1896) used fresh ovarian substance from cows and calves. The patient had had the operation of bilateral oöphorectomy performed and a few weeks afterwards complained of flashes of heat, profuse sweating, also headache, poor appetite, and marked sensations of pressure in the occipital region preceding and during the early part of the menstrual period. Five to twenty grammes of ovarian substance were administered twice a day. The patient improved very much under this treatment, particularly did the attacks of flashes of heat and sweating become less frequent and severe.

Chrobak (*Centralblatt für Gynäkologie*, No. 20, 1895) applied the treatment in patients having exaggerated symptoms of the natural or induced menopause. He considers the treatment applied in two ways: (1) through transplantation of ovarian tissue; as in the experiments of Krauer, and (2) through the administration of ovarian tissue by the mouth. In a case (induced menopause through hysterectomy) he gave the fresh ovaries of the calf. He noticed no influence. In seven other cases (because of severe symptoms during the natural menopause in one and the same symptoms in six where the menopause had been induced) he employed pastels made from the dry ovarian substance (cow); each pastel containing 0.2 gramme. In the case of natural menopause and three of the others all symptoms were very much improved. The remaining three cases had not been observed sufficiently long to report results. The treatment causes no symptoms whatever.

Mond (*Münchener medicinische Wochenschrift*, No. 14, 1896) employed preparations made (tablets of 0.25 gramme—E. Merck) either from the entire ovarian substance, the precipitate of the follicle contents, or from the cortical substance of the ovary of the cow. His observations were on eleven patients where either part or all of the internal genitalia had been removed; or where the patient complained of symptoms of the natural menopause, or of amenorrhea, the result of atrophy of the genitalia, or in cases of rudimentary uterus with a hyperplasia of the ovaries. In five of these cases tablets made from the entire ovarian substance were given three times a day. The results were generally very encouraging, the symptoms being very much relieved. The urine remained normal. In five other cases ten tablets made from the precipitate of the follicle contents were given each day. Also in these cases the patient improved very much. In one case, in which the form of preparation is not stated, it was not surely determined that the treatment did good.

Krauer (*Centralblatt für Gynäkologie*, No. 20, 1896) reports the following experimentation: He removed the ovaries from four rabbits, and then replaced them by suturing part in the mesentery of the horn of the uterus, and part was implanted

between the fascia and muscle of the abdominal wall. In three of these rabbits at the post-mortems, three, four, and six months after operation, ovarian tissue (proven microscopically) was still found in the mesentery of the horn of the uterus and in the abdominal wall. From this investigation Krauer comes to the following conclusions: (1) that in rabbits the ovaries can be removed and then transplanted in other than their normal position. (2) That they can be attached to peritoneum as well as implanted between muscle fibres. (3) That the thus implanted ovary is nourished and continues its function.

Fisher (*Wiener medicinische Wochenschrift*, Nos. 6 and 9, 1896) writes that from the literature and obseravation it is known that there exists a relationship between the thyroid gland and the genital apparatus in women. As a proof of this he refers to the greater frequency of thyroid disease in women. He then calls attention to the influence of the genital apparatus upon the healthy thyroid gland, as occurs at puberty, during menstruation, birth, the puerperium, lactation, sexual excitement, the menopause, and genital disease. The observation of the influence that the removal of part of the thyroid gland has upon the physiological and pathological conditions of the female genital apparatus and which investigators have attempted to explain by experimentation. He then considers the changes in the genital apparatus associated with or resulting from goitre, thyrodectomy, hyperthyresis, myxedema, cretinism, morbus Basedowii, acromegaly, etc.

Fisher concludes: (1) that certain occurrences influencing the genital apparatus (puberty, pregnancy, fibroid tumor) which cause a distinct change in the metabolism of the entire organism, very frequently cause an enlargement of the thyroid gland. (2) That the deficiency of the normal thyroid secretion (after thyrodectomy in myxedema, cretinism, etc.), is often associated with atrophic changes in the genital apparatus.

PATHOLOGY.

UNDER THE CHARGE OF

JOHN GUITÉRAS, M.D.,

ASSISTED BY

JOSEPH McFARLAND, M.D.

Acute Ascending Paralysis caused by Streptococci.

Remlinger (*Gazette hebdomadaire de Médecine et de Chirurgie*, No. 27, 1896) reports a typical case of Landry's disease occurring in a young officer who had contracted malaria while in Madagascar. The paraplegia developed abruptly, and death resulted from bulbar involvement eleven days from the onset of the disease. At the autopsy the cord showed some congestion in the neighborhood of the anterior horns. Sections treated after Nissl's method revealed streptococci in the cervical region, the micro-organisms in every instance being located in the tissue between the large cells of the anterior horns. The cells showed at many points a rupture of their prolongations, a condition already observed in Landry's disease by Marinesco, Ballet, Baily, Ewing, and others. There was also evidence of an active inflammation of the vessels of the anterior fissure and anterior horns. Streptococci in pure cultures were obtained from the substance of the cord cut at different levels. The streptococci were not pathogenic in the rabbit.

The Relation of Traumatism to Malignant Growths.

Ziegler (*Münchener medicinische Wochenschrift*, Nos. 27 and 28, 1895) presents a paper on this subject, based on 328 cases of carcinoma and 171 of sarcoma, which were observed in the surgical clinic in Munich during the last five years. Of the 328 cases of carcinoma, 117 were in men and 211 in women; and of 171 cases of sarcoma, 81 were in men and 90 in women. After deducting tumors of the mamma and genital organs there were 108 tumors in men and 102 in women. In the carcinomas there was a history of a single trauma 92 times. In the sarcomas a single trauma was noted 35 times, and 32 times there was a history of chronic irritation (including warts). Some cases of single trauma seem to stand in doubtful relation to the formation of the tumor, but, as a rule the new formation has been occasioned by injury. The writer bases his opinion on the continuation of the pains and swelling after the trauma, which go insensibly into the formation of the tumor. Ziegler adopts Virchow's theory of the high percentage, 25 per cent. for single trauma, and 18 per cent. for continuous irritation. The influence of trauma should be considered no matter what theory of tumor formation we accept.

The Specific Infectious Agent of Small-Pox and Artificial Immunity from this Disease.

Sternberg (*Journal of the American Medical Association*, xxvi, No. 19, 1896) concludes a paper on the above subject as follows:

(1) Small-pox, cow-pox, and horse-pox are genetically related, being different manifestations of the same infectious disease in different genera of animals.

(2) The specific infectious agent of variola and of vaccinia has not been demonstrated. The extended experimental investigations which have been made indicate that it does not belong to the class of micro-organisms known as bacteria.

(3) Various bacteria are commonly found in the lymph from vaccine vesicles obtained either from bovine animals or from man. Among these are the well-known pus-cocci, and these micrococci are probably largely responsible for the erysipelatous inflammation and other unpleasant complications which frequently result from vaccination with such lymph.

(4) Lymph preserved in glycerin after a time becomes sterile, so far as the presence of bacteria is concerned, without losing its specific virulence.

(5) Immunity may be induced by subcutaneous inoculation of vaccine vesicles without the development of a vaccine vesicle; and *it is probable that the subcutaneous injection of lymph preserved in glycerin would give protection without any of the septic complications so common as a result of vaccination by the usual method.*

(6) The blood-serum of immune animals contains a substance in solution which destroys the specific virulence of vaccine virus when brought in contact with it.

(7) This substance is not present in sufficient amount to make the blood-serum of immune animals available for the production of immunity in man (or for the treatment of variola). But it may, perhaps, be obtained in concentrated form by chemical methods, and in that case would be likely to prove useful, and possibly specific, as a therapeutic agent in this disease.

(8) The immunity resulting from subcutaneous injection of vaccine lymph, like that resulting from vaccination in the usual manner, is gradually developed and is not complete until the eighth day, depending, no doubt, upon a multiplication of the infectious agent in the body of the susceptible animal. On the other hand, the immunity resulting from the transfusion of a large amount of blood-serum from an immune animal to a susceptible animal is an immediate result of such transfusion.

Changes in the Spinal Cord after Amputation of Extremities.

Grigoriew (*Zeitschrift für Heilkunde*, Vol. xv, 1896) investigated two cases of amputation of the arm, two of amputation of the thigh, and one of amputation of the leg. The period elapsing between the operation and death varied from twenty years to one year. The results of his investigations agree with those of the greater number of authorities, and are collected by the author in the following summary: In all cases excepting that in which one year elapsed before death, deviations from the normal appearance of the cord were noticed; in all cases they were analogous, affected the corresponding portions of the cord, and consisted in a simple atrophy of certain portions of the gray and white substance, differing in the cases only by the degree of development. The simple atrophy of the nervous elements of the cord was greater as the period elapsing between amputation and death was greater, less as it was less; while in the case in which the period was only one year, atrophy was completely wanting, with reference to the relative time before the separate paths and portions of the cord became degenerated, the author found his cases in agreement with those of other authors, and with those obtained by experiment on animals,—namely, that the atrophic phenomena appear earlier, and are more marked in the sensory than in the motor areas of the cord.

The Rôle of the Spleen in the Defence of the System.

M. Courmount and M. Duffan, of Lyons (*Lancet*, June 27, 1896), communicated to the Société de Biologie (June, 13) the result of their experimental researches on the part taken by the spleen in defending the economy against the attacks of divers microbes. The animal chosen was the rabbit, which supports splenectomy without losing flesh. Injections of the streptococcus pyogenes, staphylococcus pyogenes, and the bacillus pyocyaneus were practised on these splenectomized animals and on normal rabbits. Rabbits splenectomized from two to twenty-five days beforehand were found to be much more sensitive to the bacillus pyocyaneus than their normal companions, the animal dying in a few hours, whereas normal rabbits survived longer or altogether. The staphylococcus kills the prepared animal in ten hours in a dose insufficient to bring about a like result in the normal rabbit or which kills only in a week. When an attenuated sample of a very virulent culture of streptococcus was injected into the splenectomized rabbit, the animal splenectomized only a few days or hours previously resisted always better than the normal rabbit. The splenectomized rabbit may even survive altogether when the culture is still further weakened. It would thus appear that the spleen, while useful in defending the system against the inroads of the bacillus pyocyaneus and the staphylococcus, is positively mischievous in the struggle against the very virulent of attenuated streptococcus. In both cases a focus of production of phagocytes is suppressed.

BOOK NOTICES.

A Manual of Obstetrics. By W. A. Newman Dorland, A.M., M.D., Assistant Demonstrator of Obstetrics in the University of Pennsylvania, Instructor in Gynecology in the Philadelphia Polyclinic, etc. Philadelphia: W. B. Saunders, 1896.

The office of a "manual" is pre-eminently to teach. Disease, as it is understood to-day, and accepted theories must be described dogmatically. To indulge in extended discussions of conflicting views and to weigh the evidence for and against the teachings of different authors tend rather to leave the student confused than instructed. It is the province of the "text-book" and "system" to gather all the evidence obtainable, and by judicial reasoning lead the reader to the best conclusions.

An examination of this volume shows that it fulfils the requirements mentioned. Each condition is dealt with in a direct and positive manner. The subject is discussed under physiologic and pathologic obstetrics. Under the former heading are described a normal pregnancy and labor in a normal woman from the time of conception to the weaning of the child, as nearly as possible in chronologic order. In the second and larger portion of the book are similarly described those variations in the ovular, embryonic, and fetal development that are met with, as well as the abnormal conditions to which the mother is subject, that complicate gestation and labor, and, finally, the affections that occur in the new-born child are detailed. The book is thoroughly modern, the latest teachings only on the respective subjects are set forth. Numerous cuts supplement descriptions in the text, and conditions likely to be confounded are clearly separated by arranging the characteristics of each in tabular form.

Dr. Dorland's large experience as a quiz-master in this branch has peculiarly fitted him for the preparation of a work suited to the needs of students, and it is not too much to say that this is one of the best books of its class that has come to our notice.

Principles of Surgery. By N. Senn, M.D., Ph.D., LL.D., Professor of Practice of Surgery and Clinical Surgery in Rush Medical College, Chicago, etc. Second edition, thoroughly revised. Philadelphia: The F. A. Davis Co., 1896.

The five years that have elapsed since the publication of the first edition have witnessed an unprecedented activity in this line of work, so that many changes and additions have been necessary in the present edition, which adds considerably to the size of the volume.

The close association of modern bacteriology with the etiology and pathology of surgical affections, which was so prominent a feature of the original work, has been still further elaborated and brought up to date.

This is a valuable companion to the numerous surgical works that deal more particularly with the practical features of surgery,

while the underlying principles, the etiology and pathology, are frequently given but scant space. The author well says in the preface, "The successful study and practice of any branch of the healing art require a thorough knowledge of the principle upon which it is based. The student who has mastered the principles of surgery will have no difficulty in applying his knowledge in practice, while the one who has burdened his memory with numerous details to meet special indications is always at a loss in making prompt and judicious use of his therapeutic resources when confronted by rare lesions or unexpected emergencies."

Obstetric Accidents, Emergencies, and Operations. By L. Ch. Boislinière, A.M., M.D., LL.D., late Emeritus Professor of Obstetrics in the St. Louis Medical College, etc. Profusely illustrated. Pp. 381. Philadelphia: W. B. Saunders, 1896.

This volume, which, in its scope and design, is quite unique, is the result of an experience of many years in obstetric practice in the hands of one who attained a well-merited reputation in the section of the country in which he was located, and whose teachings are to-day influential among thousands of his students scattered throughout the western portion of our country. It is unfortunate, however, that in many respects the posthumous work of the lamented author cannot be commended. While skilful in diagnosis and ingenious in resource, in treatment it is wofully behind the times, and absolutely at variance with the antiseptic treatment of to-day. Thus, in the treatment of post-partum hemorrhage, as a *dernier ressort* the injection of Monsel's solution is advised, and the statement is made "that no tampon should be applied, else the external hemorrhage would be converted into an internal one." Evidently the author has confounded a vaginal with a uterine tamponnade. Again, the morphine treatment of puerperal eclampsia is advocated, and Cesarean section is mentioned as a last resort in placenta previa, while in desperate cases of retroversion or incarceration of a gravid uterus "gastrotomy" should be performed. Such statements as the foregoing are in and of themselves sufficient to condemn the book as an unsafe guide for the general physician who is compelled to assume a large amount of obstetric work. Under revision, however, the book could be made to accord with the accepted teachings, and then would convey some valuable truths learned in a large and varied experience. The mechanical portion of the book has been well done and the illustrations are good.

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